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# Citizen Concern with Power Plant Siting

## Wisconsin Power Plant Impact Study

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January 1980

# CITIZEN CONCERN WITH POWER PLANT SITING

## Wisconsin Power Plant Impact Study

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and Wisconsin Department of Natural Resources

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# FOREWORD

The U.S. Environmental Protection Agency (EPA) was created because of increasing public and governmental concern about the dangers of pollution to the health and welfare of the American people. Polluted air, water, and land are tragic testimony to the deterioration of our natural environment. The complexity of that environment and the interplay between its components require a concentrated attack on the problem.

Research and development, the necessary first steps, involve definition of the problem, measurements of its impact, and the search for solution. The EPA, in addition to its own laboratory and field studies, supports environmental research projects at other institutions. These projects are designed to assess and predict the effects of pollutants on ecosystems.

One such project, which the EPA is supporting through its Environmental Research Laboratories in Duluth, Minnesota, and Corvallis, Oregon (Dr. Norman R. Glass) is the study "The Impacts of Coal-Fired Power Plants on the Environment". This interdisciplinary study, involving investigators and experiments from many academic departments at the University of Wisconsin, is being carried out by the Environmental Monitoring and Data Acquisition Group of the Institute for Environmental Studies at the University of Wisconsin-Madison. Several utilities and state agencies are cooperating in the study: Wisconsin Power and Light Company, Madison Gas and Electric Company, Wisconsin Public Service Corporation, Wisconsin Public Service Commission, and Wisconsin Department of Natural Resources.

During the next year reports from this study will be published as a series within the EPA Ecological Research Series. These reports will include topics related to chemical constituents, chemical transport mechanisms, biological effects, social and economic effects, and integration and synthesis.

This report presents in detail the responses of citizens who participated in four public workshops dealing with the problems of site selection for power plants. Meeting in small groups the participants formulated and then ranked the issues related to power-plant siting that most affected them. In addition to presenting these results, the authors describe the workshop procedure, discuss differences among the workshops, and analyze the results of a questionnaire which the participants were asked to complete.

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Deputy Director
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# ABSTRACT

Four workshops were held to identify citizen concerns with power-plant siting. Two-hundred fifteen invited participants attended the workshops in the spring of 1977 in four Wisconsin locations, including areas with both existing and proposed power-plant sites. At the workshops, participants were divided into small groups and asked to identify and rank power-plant-siting concerns in three categories: biological and physical, economic and social, and land use. Each group ranked the top 10 concerns from each of the three categories. In addition, workshop participants filled out a survey which asked them to rank the suitability of various sites for nuclear and coal-fired power plants and transmission lines, to express their views on questions that could not be covered in a workshop format, to provide some personal information, and to give their views on the workshop. The participants in these workshops expressed a wide range of concerns, both positive and negative, in connection with power-plant siting.

A composite list of every concern mentioned by the participants is included in this report. In addition, concerns were combined and analyzed by their ranking, both overall and in the final vote. Economic issues (taxes, consumer costs, and jobs), agricultural land preservation, and water availability were consistently ranked as the most important concerns.

The survey results indicated a strong negative reaction to siting in residential areas; some preference for several small plants rather than one large plant (46% versus 36%); a favorable attitude to power plants serving only local electrical needs; a negative attitude toward Wisconsin's new tax law, which provides less power-plant tax money for local governments; and a favorable attitude toward the workshops.

This report was prepared with the cooperation of faculty and graduate students in the Department of Landscape Architecture at the University of Wisconsin-Madison.

Most of the funding for the research reported here was provided by the U.S. Environmental Protection Agency, but funds were also granted by the University of Wisconsin-Madison, Wisconsin Power and Light Company, Madison Gas and Electric Company, Wisconsin Public Service Corporation, and Wisconsin Public Service Commission. This report was submitted in fulfillment of Grant No. R803971 by the Environmental Monitoring and Data Acquisition Group, Institute for Environmental Studies, University of Wisconsin-Madison, under the partial sponsorship of the U.S. Environmental Protection Agency. The report covers the period of January 1977-July 1977, and work was completed as of December 1978.

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# SECTION 1

# INTRODUCTION

## WORKSHOP RATIONALE

In the spring of 1977 four workshops on power-plant siting were organized by researchers from the University of Wisconsin. The purpose of these workshops, held in Janesville, Eau Claire, Stevens Point, and Sheboygan, Wisconsin, was to enable residents of the to express their views on the location and possible impact of power plants. Two hundred and fifteen invited participants from 17 Wisconsin counties (Figure 1) spent an entire day at one of the four workshops expressing their concerns, attitudes, and values with regard to power-plant siting. The workshops were part of a larger study designed to assess the environmental impact of power plants. That study has sought to measure the impact of the Columbia Generating Station in Portage, Wisconsin, on the water, wildlife, plants, air, and scenic environment of the area.

Environmental monitoring studies, especially those concentrating on one newly constructed power plant, cannot document all the effects of power-plant construction and operation. They rarely, for example, focus on nonscientific public concerns such as the plant's impact on employment or the effects of flashing control-tower lights and increased traffic in the area. The power-plant siting workshops were designed to identify these public concerns and incorporate them into the overall environmental impact assessment. This report describes the results of the four workshops.

## WORKSHOP OBJECTIVES

The workshops were designed to provide an organized structure for identifying the major economic and environmental attitudes held by persons living near present and future generating facility sites. Both positive and negative aspects of power-plant siting were considered. All possible types of power plants were included in the discussion for the following reasons:

1) Many of the requirements and impacts of large electric generating stations of any type, whether coal, nuclear, or gas, are similar.

2) Even where the impacts of various types of power plants are different, a participant's preference for one type of power plant over another can be distinguished. For example, if radiation or nuclear waste disposal is mentioned more often than $SO_2$, smoke, and

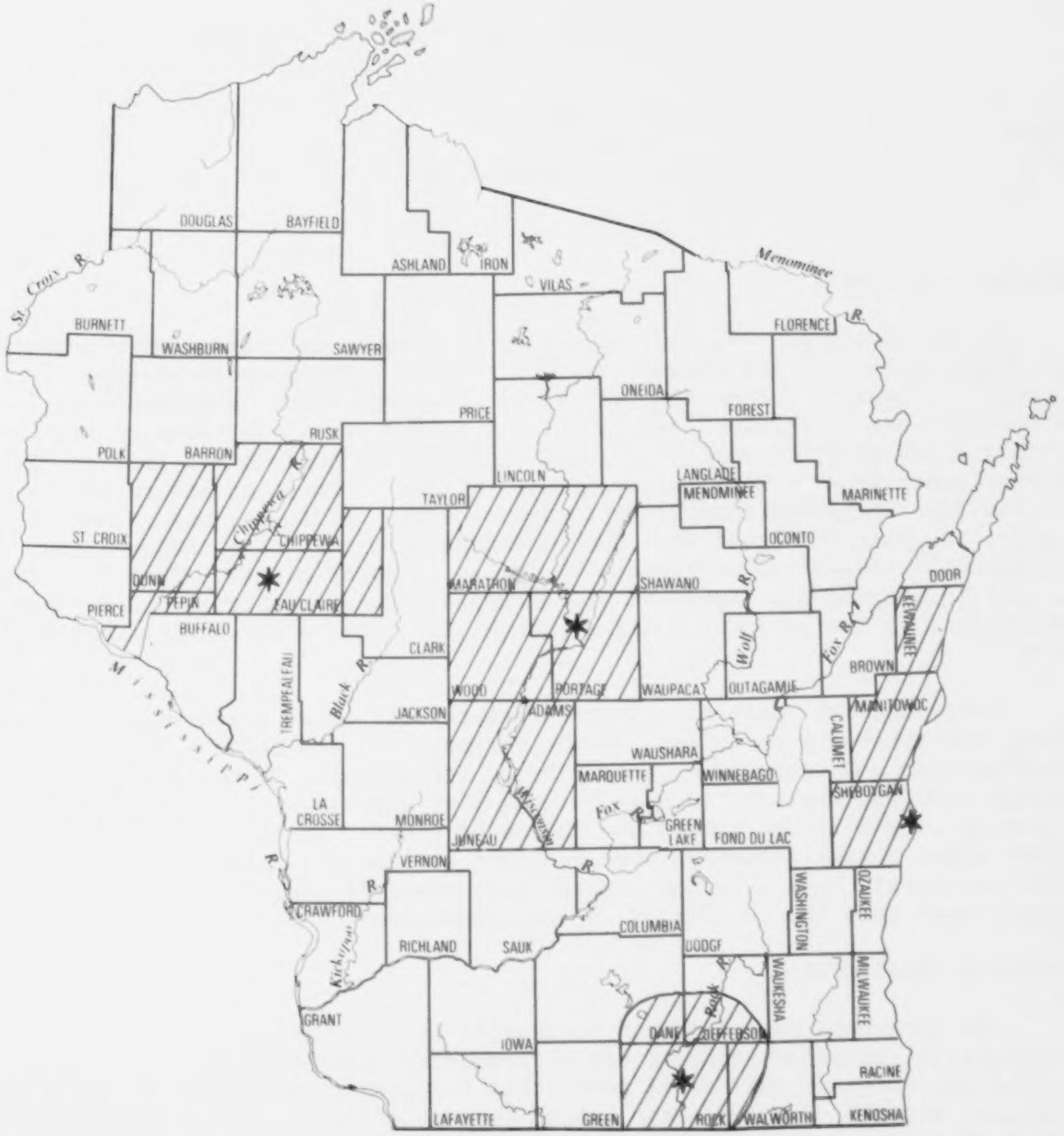

Figure 1. Map of Wisconsin showing workshop locations and counties represented by participants.

particulate pollution, concern is probably greater about a nuclear power plant than about a coal-fired plant.

3) A third reason for not distinguishing the type of power plant was that a site for a power plant may be chosen before the type. For example, although a nuclear plant was first proposed at the Koshkonong site, a coal-fired plant is now reportedly being considered.

The workshops were further designed to represent all interest groups. Participants were recommended by county extension agents, officials from the Wisconsin Department of Natural Resources (WDNR) and the Wisconsin Public Service Commission (WPSC), local officials, members of regional planning commissions, chambers of commerce, and state and local interest groups such as the Farm Bureau, environmental organizations, the League of Women Voters, and many others.

Workshop participants included farmers, union members, elected local and county officials (including several mayors and county board chairmen), county and state employees, and representatives of commercial, industrial, recreational, and environmental interests, as well as members of the League of Women Voters and concerned citizens.

## WORKSHOP FORMAT

Since the goal of the workshops was to identify public concerns rather than to provide a forum for discussion, a rather rigid format was followed. After registration and a brief introduction, participants were divided into groups of 8-10 persons, representing a variety of interests. Each group was led by a university person familiar with the question of the environmental impact of power plants. The group leaders coordinated and recorded the information developed by the groups, but did not join in the process of listing or ranking concerns. A method of group participation known as the "nominal group technique" was used. Developed by Professor Andre Delbecq of the University of Wisconsin-Madison School of Business, the technique minimizes discussion and moves quickly to identify the important concerns. The round-robin sequence of the Delbecq technique gave each participant an equal input into the results.

Concerns of the participants were divided into three general areas: (1) Biological and physical, (2) economic and social, and (3) land use. Participants were given 10 min to work independently on lists of their 10 most important concerns in each area. The group leader then asked each participant to contribute to the group's collective list. The round-robin continued until all concerns were listed. After discussion of the collective lists, each participant was asked to choose the 10 most important concerns from the list. A vote was taken on these concerns with 10 points going to the participant's most important concern, 9 points to the second most important concern, and so on down to 1 point for the 10th most important concern.

These concerns were then combined by the researchers into larger categories within each of the three areas. These categories were as follows:

Economic
Political/planning
Health and radiation
Growth
Water
Agricultural land preservation
Wastes
Plant location
Air/climate
Environmental pollution
Safety/security
Social/cultural
Scenic/historic
Physical site characteristics
Natural environment
Transmission lines
Transportation
Plant operation
Need for plant
Recreation
Conservation
Land use changes
Research
Future generations
Noise
Insurance

The final vote was a vote on the 10 most important concerns in each of the three areas, resulting in a list of the 30 most important concerns. These concerns were again placed by the researchers in the above categories; in many cases various concerns were combined into a single category. The workshop format was designed to provide information that cannot be obtained by a survey or public hearings, since in small groups each individual could contribute to the listing and voting. The small groups also provided a means for some exchange of ideas and viewpoints, which the final list reflects.

In addition to the workshop activity, a questionnaire was distributed to participants to identify views not covered in the small groups. Participants were asked (1) to rate various kinds of sites (for example, industrial, commercial, agricultural, or wetland areas) for a nuclear power plant, a coal-fired power plant, and transmission lines; (2) to express their willingness to accept a power plant to meet increased electrical demand elsewhere in the state; (3) to provide information on their occupation, age, and whether or not they live near a power plant; and (4) to express their views on the workshop.

## OVERVIEW OF THE REPORT

Section 2 is a brief summary of the principal conclusions contained in this report.

Section 3 presents the overall results from all four workshops. Overall summary tables are presented, together with a comparison of the results from the four workshops. Appendix A is a list of all the concerns identified by the 215 participants.

Section 4 reports on the four individual workshops and briefly examines the variations among subgroups for some of the major concerns.

Appendices B, C, D, and E contain the lists of participants by groups together with a complete listing by rank of each group's concerns, arranged in the following categories: Biological and physical, economic and social, and land use. The final voting categories are also presented.

The results of the supplementary survey are found in Section 5. The survey, which was completed by 190 participants, is presented in Appendix F.

Written comments on the workshops, obtained from participants who completed the survey, are summarized in Section 6 and are presented in full in Appendix G.

## SECTION 2

## CONCLUSIONS AND RECOMMENDATIONS

The general categories of issues that were mentioned the most frequently and ranked the highest were economics (including taxes, growth, jobs, community costs, and consumer costs), agricultural land preservation, and water availability. These categories may be thought of as concerns over money, jobs, food, and water.

Environmental issues, including preservation of natural areas, water pollution, scenic values, and noise, were often mentioned, but rarely were the highest ratings.

Some issues, such as conservation, establishing the need for the plant, and concern for future generations, were ranked as very important whenever they were mentioned in a group; however, some groups considered these concerns as prerequisites for power-plant siting and therefore did not include them.

Other issues, such as social and cultural changes (for example, population changes and changes in lifestyle), were frequently mentioned, but never were ranked very highly.

Despite some variations, the differences in rankings given by the different workshops were not statistically significant.

When asked to rate various land-use categories for power-plant sites, participants placed the categories in this order: Great Lakes shores, heavy industrial areas, river banks, forests, light commercial areas, agricultural land, shores of smaller lakes, wetlands, parks, and residential areas.

For transmission lines suitability, land-use categories were ranked as follows: Industrial, agricultural, forests, wetlands, shorelines, light commercial, parks, and residential.

Participants preferred several small plants to one large plant (46% to 36%).

A power plant serving local electrical needs was strongly favored over one serving distant customers.

Most participants did not favor Wisconsin's new tax law, which reduces utility tax payments to local townships in which power plants are located.

Comments on the workshops were on the whole positive, although many specific problems were also elicited.

In general, the results indicate the range of citizen concerns over power-plant siting. More than 2,000 specific concerns were generated, some unusual and some based on apparent misinformation. Regardless of their outlook, however, the participants clearly desired more information on many aspects of power-plant siting. In addition, many participants noted that one of the greatest benefits of the workshops was in stimulating communication among people with different views and backgrounds.

## SECTION 3

## METHODS AND OVERALL RESULTS

This section presents the complete lists and rankings of concerns from the workshops and compares overall results for each workshop.

The 215 participants were chosen to represent a cross section of occupations and interests. Table 1 provides only a general indication of this cross section, however, since most of the participants could have been placed in more than one category. For example, a farmer may also be a county board member, or a business woman may head a recreation association.

### METHODS

Participants at each workshop were divided into small groups. The Janesville workshop had seven groups, Eau Claire and Stevens Point had six groups each, and Sheboygan had five groups--a total of 24 groups. At the end of the workshop each group had long lists of concerns and rankings for those concerns in each of three major categories: Biological and physical, economic and social, and land use. In addition, each group took a final vote to determine the 10 most important concerns in each of the three categories, the 30 most important concerns.

Various techniques were used to analyze the output of the 24 workshop groups. All the concerns were compiled into a master list, analyzed, and placed in categories. A second method also placed the concerns in categories, but only examined the 30 most important. The lists and rankings that are the source of all the tabulations are included in Appendices A through D.

The major reason for arranging concerns in categories was that over 2,000 concerns for power-plant siting were listed. Obviously, almost all of the concerns came up many times in many groups and were repeated within groups. Even when concerns were separated into three major categories, there was a good deal of overlap. For example, agricultural land preservation could be listed by the same group as a biological and physical concern, an economic and social concern, and a land-use concern. In other cases, items such as taxes, community costs, and consumer costs always came up in the economic and social category.

Even within a single group there were often nearly identical concerns in the same category. An example can be seen in the following list from one group, where radiation is mentioned several times:

## TABLE 1. NUMBER OF WORKSHOP PARTICIPANTS BY COUNTY AND OCCUPATION OR FIELD OF INTEREST

| Occupation or field of interest | County | | | |
|---|---|---|---|---|
| | Janesville | Eau Claire | Stevens Point | Sheboygan |
| Interested citizens/ community organizations | 15 | 9 | 8 | 5 |
| Government and elected officials | 14 | 7 | 16 | 15 |
| Farming | 10 | 8 | 6 | 5 |
| Business/industrial | 12 | 7 | 15 | 6 |
| Environmental and consumer groups | 7 | 6 | 7 | 5 |
| Recreation and tourism | 3 | - | 1 | 2 |
| Other | 7 | 9 | 5 | 5 |
| Total | 68 | 46 | 58 | 43 |

| Rank | Points | |
|---|---|---|
| 3 | 45 | Air pollution-invisible: radiation, chemicals, odor |
| 9 | 16 | Danger of any degree of radioactivity from any source associated with power plants |
| 14 | 12 | Comparison of radioactivity - coal versus nuclear |
| 14 | 12 | Nuclear radiation - effect on employees - cumulative and short term |
| 16 | 11 | Nuclear radiation - cumulative and acute on all human and animal lives |
| 24 | 5 | Danger to irrigation water from nuclear radiation |

27 2 Danger from natural radiation

Group leaders did not encourage combining items before the voting because combining items was believed to favor the most general concerns. The purpose was to focus on the most specific concerns possible.

For analysis, however, items were combined into categories that did not imply negative or positive reactions to power plants, but merely indicated associated concerns. For example, we combined in one grouping all listings that dealt with the subject "jobs." Some participants believed that the creation of jobs was one reason for building a power plant; others feared that all the jobs would go to outsiders with no local job benefits; still others simply wanted to know what impact a power plant would have on the local employment situation.

Obviously difficulties arise when concerns are combined. The more general the grouping, the more items will be assigned to it, and the more votes it will receive. Being very specific, however, generates lists too lengthy for analysis. At least 95% of the concerns listed fit quite readily into one of the combined categories. The combined categories give an indication of the importance of that category of concern (i.e., how many points it received). Rankings based on points were done two different ways. Each person had a total of 55 points (10, 9, 8 ...1) on each vote; therefore, points received could simply be added to come up with a total vote. However, for comparisons among workshops, the votes for each category were normalized into percentages of the total workshop votes. The frequency with which a particular concern was mentioned was also included in the analysis.

A further analysis of category groupings was made by dividing the total number of points each concern received by the number of times it was listed by participants. The resulting figure, called the importance value, provides a means of determining which concerns came up only a few times, but were rated very highly when they did. The importance value also indicates which items were mentioned many times, but rarely received many votes.

## RESULTS AND DISCUSSION

### Comprehensive List of Concerns

A composite list of all the concerns that came up in every group in the workshops appears in Appendix A. The concerns are placed in general categories for the purpose of analysis. Priorities regarding positive, negative, and neutral effects of power-plant siting occur in each category. The number of concerns that were voted on, categorized, and analyzed in each workshop is shown in Table 2.

When the total number of concerns per workshop is divided by the number of participants, the four workshops average 9-11 concerns per person; Eau Claire participants contributed the most concerns per person. Many of the concerns are duplicates, however, within categories, within workshops, and in the various small groups.

TABLE 2. NUMBER OF CONCERNS AT EACH WORKSHOP
LISTED IN EACH OF THREE GENERAL AREAS

| Workshop | Number of groups | Areas of concern: Biological and physical | Areas of concern: Economic and social | Areas of concern: Land-use | Total |
|---|---|---|---|---|---|
| Janesville | 7 | 205 | 233 | 173 | 611 |
| Eau Claire | 6 | 180 | 180 | 134 | 494 |
| Stevens Point | 6 | 194 | 208 | 151 | 553 |
| Sheboygan | 5 | 152 | 169 | 137 | 458 |
| Total | | 731 | 790 | 595 | 2,116 |

More economic and social concerns were listed in every workshop than either biological and physical or land-use concerns (Table 2). Unfortunately, the order in which concerns were listed did not vary from workshop to workshop; thus, it is impossible to say whether participants were more aware of economic and social concerns or whether there were other reasons for the long lists.

The 2,116 concerns were placed in 26 categories in ranked order (Table 3). Economics, water, and plant location were the top three categories when all 2,116 concerns were voted on.

## The Final Vote: The 30 Most Important Concerns

The concerns and the points they received in the vote on the 30 most important concerns were categorized and analyzed similarly to the concerns and points in the vote on all listed concerns (Table 4). Importance values were included to offset the distortions caused by a concern getting a high rating only because it was mentioned many times or a low rating because it was mentioned few times. These values were calculated by dividing the number of points a concern category received by the number of times concerns in that category were listed. Categories such as agricultural land preservation, conservation, air climate, need for the plant, and health/radiation received high importance values. (Concern for future generations was not mentioned in enough groups to be included in the analysis, although it received a comparatively high number of points when it was listed.)

TABLE 3. POWER-PLANT-SITING CONCERNS RANKED ACCORDING TO 26 CATEGORIES

| | Concern category | Points | Percentage of total points |
|---|---|---|---|
| 1. | Economic | 4,122 | 13.2 |
| 2. | Water | 2,449 | 7.8 |
| 3. | Plant location | 1,985 | 6.3 |
| 4. | Political/planning | 1,953 | 6.2 |
| 5. | Wastes | 1,794 | 5.7 |
| 6. | Agricultural land preservation | 1,755 | 5.6 |
| 7. | Health and radiation | 1,733 | 5.5 |
| 8. | Air/climate | 1,552 | 4.9 |
| 9. | Natural environment | 1,524 | 4.9 |
| 10. | Plant operation | 1,268 | 4.1 |
| 11. | Growth | 1,191 | 3.8 |
| 12. | Social/cultural | 1,187 | 3.8 |
| 13. | Transmission lines | 1,090 | 3.5 |
| 14. | Physical site characteristics | 1,074 | 3.4 |
| 15. | Scenic/historic | 989 | 3.2 |
| 16. | Safety/security | 913 | 2.9 |
| 17. | Conservation | 838 | 2.7 |
| 18. | Environmental pollution | 718 | 2.3 |
| 19. | Transportation | 626 | 2.0 |
| 20. | Recreation | 652 | 2.0 |
| 21. | Need for plant | 569 | 1.8 |
| 22. | Land-use change | 476 | 1.5 |
| 23. | Noise | 174 | 0.5 |
| 24. | Insurance | 172 | 0.5 |
| 25. | Research | 170 | 0.5 |
| 26. | Future generations | 140 | 0.4 |

In the final vote economic concerns received the most points. Agricultural land preservation, a rather specific concern, moved up to second place, followed by water, growth, and political/planning concerns.

## The Major Concerns

The ratings provided by voting all concerns and by voting on the 30 most important concerns are shown in Figure 2. The correlation between the two methods of analysis is fairly good. In the final vote (on the 30 most important concerns), agricultural, growth, conservation, and safety concerns became more significant.

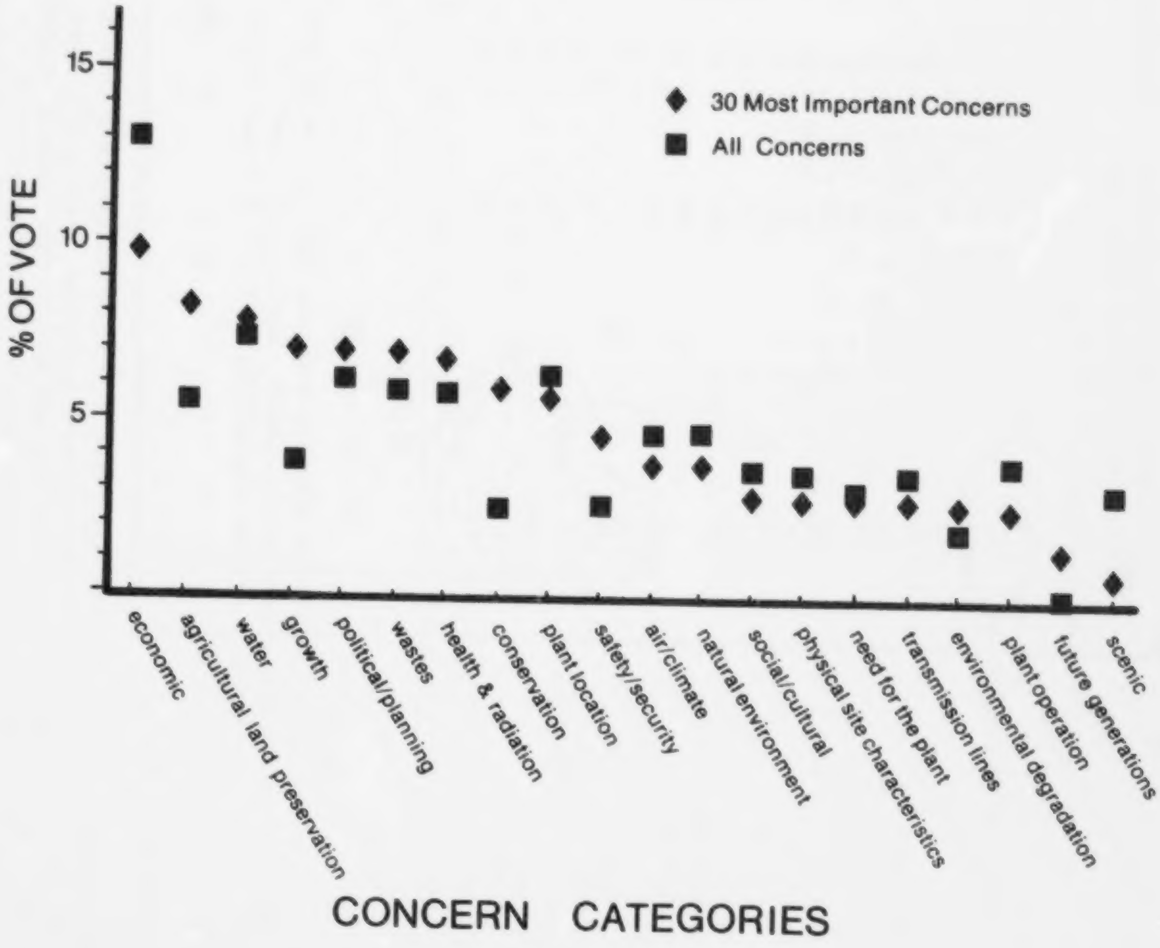

Figure 2. Category rankings provided by voting on the 30 most important concerns and all concerns.

TABLE 4. HIGHEST RANKING CATEGORIES OF SITING CONCERNS BASED ON THE FOUR WORKSHOP VOTES ON THE 30 MOST IMPORTANT CONCERNS

| | Concern category | Points | Percentage of total points | Times mentioned | Importance value | (rank) |
|---|---|---|---|---|---|---|
| 1. | Economic | 944 | 9.8 | 79 | 11.95 | (14) |
| 2. | Agricultural land preservation | 832 | 8.7 | 40 | 20.8 | (1) |
| 3. | Water | 816 | 8.5 | 51 | 16.0 | (8) |
| 4. | Growth | 688 | 7.2 | 54 | 12.74 | (13) |
| 5. | Political/planning | 679 | 7.1 | 45 | 15.09 | (9) |
| 6. | Wastes | 675 | 7.0 | 47 | 14.36 | (10) |
| 7. | Health & radiation | 660 | 6.9 | 38 | 17.37 | (6) |
| 8. | Conservation | 570 | 5.9 | 29 | 19.66 | (2) |
| 9. | Plant location | 538 | 5.6 | 42 | 12.81 | (12) |
| 10. | Safety/security | 455 | 4.7 | 27 | 16.85 | (7) |
| 11. | Air/climate | 406 | 4.2 | 22 | 18.45 | (4) |
| 12. | Natural environment | 374 | 3.9 | 35 | 10.69 | (15) |
| 13. | Social/cultural | 313 | 3.3 | 49 | 6.93 | (19) |
| 14. | Physical site characteristics | 296 | 3.1 | 28 | 10.60 | (16) |
| 15. | Need for plant | 294 | 3.1 | 16 | 18.38 | (5) |
| 16. | Transmission lines | 293 | 3.1 | 31 | 9.45 | (18) |
| 17. | Environmental degradation | 271 | 2.8 | 29 | 9.55 | (17) |
| 18. | Plant operation | 252 | 2.6 | 19 | 13.26 | (11) |
| 19. | Future generations | 149 | 1.6 | 8 | 18.63 | (3) |
| 20. | Scenic/historic | 76 | 0.8 | 15 | 5.07 | (20) |

Based on an analysis of all listed concerns and the vote on the 30 most important concerns, the major concerns (economics, agricultural land preservation, water, and growth) may be translated into money, food, water, and jobs.

## Workshop Differences

The percentage of votes the various concern categories received when all the concerns were considered differed with each workshop (Figure 3). Some categories were given similar percentage ratings in the four workshops, and some were inconsistent in rank. On several issues the rating given at Janesville differed noticeably from the ratings of the other three workshops.

Comparisons among workshops revealed no consistent trends in voting response, and statistical tests failed to determine regional differences.

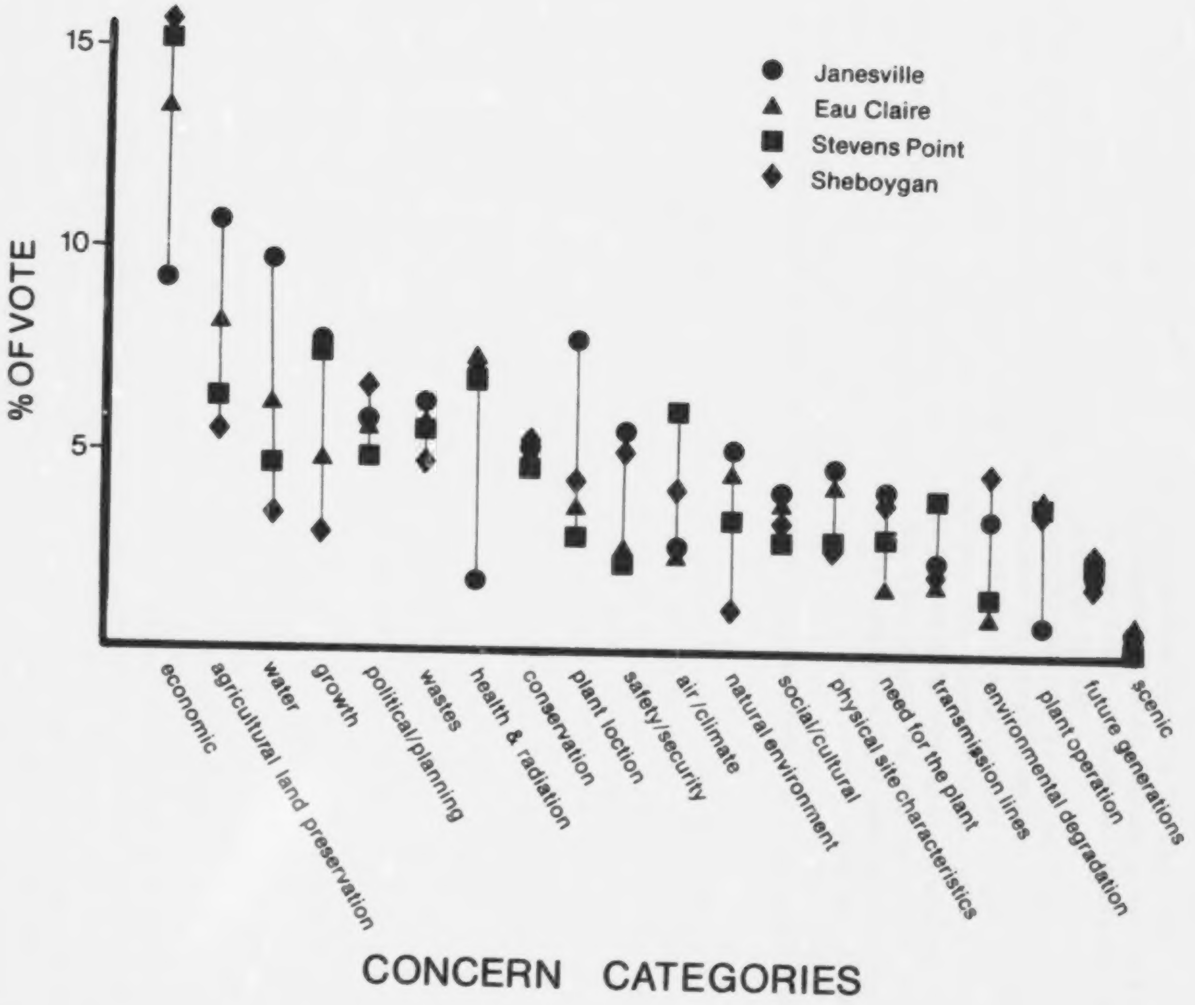

Figure 3. Workshop differences in rankings of concern categories when all concerns were considered.

## Conclusions

The following conclusions can be drawn from the overall results of the four workshops:

1) The long list of power-plant-siting concerns identified many items on which participants wanted more information, regardless of whether they had positive, negative, or neutral feelings about power-plant siting.

2) The major finding of the workshops was that participants appeared to be most concerned about the effects of power-plant location on the lives of human beings. Economics (taxes, jobs, costs), food (agricultural land preservation), and water (supply and availability) were ranked highest on nearly every list. Although environmental topics, including preservation of natural areas, water pollution, scenic values, and noise, were often mentioned and occasionally given high ratings, they rarely received ratings as high as the "human" concerns.

3) No regional differences were discernible among the four workshops.

# SECTION 4

# SPECIFIC WORKSHOP RESULTS

## JANESVILLE

The Janesville workshop on 21 April 1977 was the first and largest of the four power-plant-siting workshops. The 68 persons attending (29% of the number originally invited) represented a variety of backgrounds and interests. Participants came from 4 counties--Rock, Dane, Jefferson, and Walworth--and at least 19 towns. Most of the participants (61.8%) came from the areas of Janesville (20.5%), Beloit (16.2%), Fort Atkinson (16.2%), and Jefferson (8.8%).

The area from which workshop participants were drawn includes two existing power-generating stations: Rock River, a 279.2-MW gas, oil, and coal facility south of Janesville; and Blackhawk, a 50-MW oil, gas, and hydroelectric facility at Beloit. In addition, a large power plant is proposed for Lake Koshkonong, near the intersection of Dane, Jefferson, and Rock Counties. The original proposal for a nuclear facility was the center of much local controversy and was recently withdrawn, but the site is still under consideration for a coal-fired plant.

The Janesville workshop consisted of seven small groups, ranging in size from 8 to 12 participants. They listed a total of 614 concerns during the workshop. Complete lists of participants and concerns can be found in Appendix B.

### Overall Concerns

The number of points allocated to each category of concern, the percentage of the total number of points, the times the concern category was mentioned, and the importance value of each category are shown in Table 5. The categories are listed in the order of the number of points they received. There is little relationship between the importance value of each category and the number of points it received. (The importance value equals the number of points divided by the number of times the item was mentioned.) For example, water concerns received the most points, but this category is sixth in importance value. Location concerns ranked second in number of points and 12th in importance. This category included concerns such as locating the plant away from residential areas, near users, or in industrial areas. Economic concerns ranked third in number of points, but only 14th in importance value. This ranking resulted because there were many economic concerns and each received fairly low votes. Agricultural land preservation, a relatively well-defined concern, received the highest importance value and was rated high as well.

TABLE 5. JANESVILLE WORKSHOP: RANKING OF CATEGORIES
OF SITING CONCERNS BASED ON THE VOTE ON ALL CONCERNS

| Concern category | Points | Percentage of total points | Times mentioned | Importance value | (rank) |
|---|---|---|---|---|---|
| 1. Water | 1,051 | 10.6 | 52 | 20.2 | (6) |
| 2. Plant location | 961 | 9.7 | 63 | 15.3 | (11) |
| 3. Economic | 954 | 9.2 | 65 | 14.7 | (13) |
| 4. Natural environment | 781 | 7.9 | 38 | 20.6 | (5) |
| 5. Political/planning | 778 | 7.9 | 34 | 22.8 | (2) |
| 6. Agricultural land preservation | 611 | 6.2 | 25 | 24.44 | (1) |
| 7. Plant operation | 566 | 5.7 | 44 | 12.9 | (15) |
| 8. Social/cultural | 498 | 5.0 | 40 | 12.5 | (17) |
| 9. Air/climate | 466 | 4.7 | 24 | 19.4 | (8) |
| 10. Waste disposal | 420 | 4.0 | 23 | 18.26 | (9) |
| 11. Transmission lines | 388 | 4.0 | 28 | 13.9 | (14) |
| 12. Scenic/historic | 384 | 3.9 | 34 | 11.3 | (20) |
| 13. Conservation | 356 | 3.6 | 18 | 19.8 | (7) |
| 14. Physical site characteristics | 257 | 2.6 | 20 | 12.85 | (16) |
| 15. Safety/security | 246 | 2.4 | 14 | 17.6 | (10) |
| 16. Growth | 213 | 2.2 | 10 | 21.3 | (3) |
| 17. Land-use changes | 211 | 2.0 | 14 | 15.1 | (12) |
| 18. Waste use | 189 | 1.9 | 9 | 21.0 | (4) |
| 19. Health and radiation | 184 | 1.9 | 15 | 12.3 | (19) |
| 20. Recreation | 180 | 1.8 | 22 | 8.1 | (22) |
| 21. Noise | 51 | 0.5 | 11 | 4.6 | (24) |
| 22. Need for plant | 50 | 0.5 | 4 | 12.5 | (17) |
| 23. Transportation | 43 | 0.4 | 7 | 6.1 | (23) |
| 24. Others | 38 | 0.3 | 4 | 9.5 | (21) |
| 25. Research | 9 | 0.09 | 2 | 4.5 | (25) |
| 26. Insurance | 0 | 0 | 0 | 0 | (26) |

Based on the list of total concerns, the six areas considered most important by the Janesville participants were: (1) water concerns (sixth in importance ranking); (2) location concerns (12th in importance ranking); (3) economic concerns, including taxes, employment, community costs, and development questions (14th in importance ranking); (4) natural environment concerns (fifth in importance ranking); (5) political/planning concerns, such as the need for effective citizen participation, comprehensive regional planning, and questions about what authority actually makes the siting decision (second in importance); and (6) agricultural land preservation (first in importance).

## The 30 Most Important Concerns

When only the 30 most important concerns are analyzed, four of the six highest categories in the overall vote remain in the top six in order of points received: agricultural land preservation, water (supply and pollution), economic concerns, and plant location (Table 6). Political and planning concerns move to eighth place in the number of points received, and natural environment concerns move to ninth. Taking their places are waste-disposal and waste-use concerns, which received the fourth highest number of points, and aspects of energy growth, which received the sixth most votes.

These four concern categories--economics, water, agricultural land preservation, and plant location--are very important, no matter which method of analysis is used. Other concerns, notably scenic/historic values and aspects of energy growth, were rated differently in the final vote (the 30 most important) than they were overall. Scenic/historic values, for example, received the 13th highest number of votes overall, yet in the final vote this concern was second from last in importance. Energy-growth questions, on the other hand, were rated more important in the final vote (sixth highest in number of points) than in the overall vote (17th). These differences may represent changes of opinion between votes, or they may indicate differences in the relative importance of concerns from the three discussion areas. For example, scenic/historic values were most frequently mentioned during the land-use discussion. These values may have been relatively more important when measured against other land-use concerns than when ranked with concerns from biological and physical and economic and social lists.

## Intergroup Differences

Although the workshop coordinators attempted to represent all interests in each small group, the composition of lists varied among groups. Three concerns that ranked high both overall and in the vote on the 30 most important concerns were economics, agricultural land preservation, and water (Figure 4). The average percentage of of points given to water and economic concerns in the overall voting was not much different from the percentage allotted in the final vote. Agricultural land preservation, however, received 4% more of the final voting points than of the overall voting points. The proportion of votes given to these three concerns at Janesville varied from the mean by as much as 9.9%.

## Conclusions

Based on the total list of concerns, water, plant location, and economics were considered the three most important concern categories by participants in the Janesville workshop. In the final vote agricultural land preservation was given top priority, followed by water and economic concerns. Plant-location concerns were ranked fifth in the final vote.

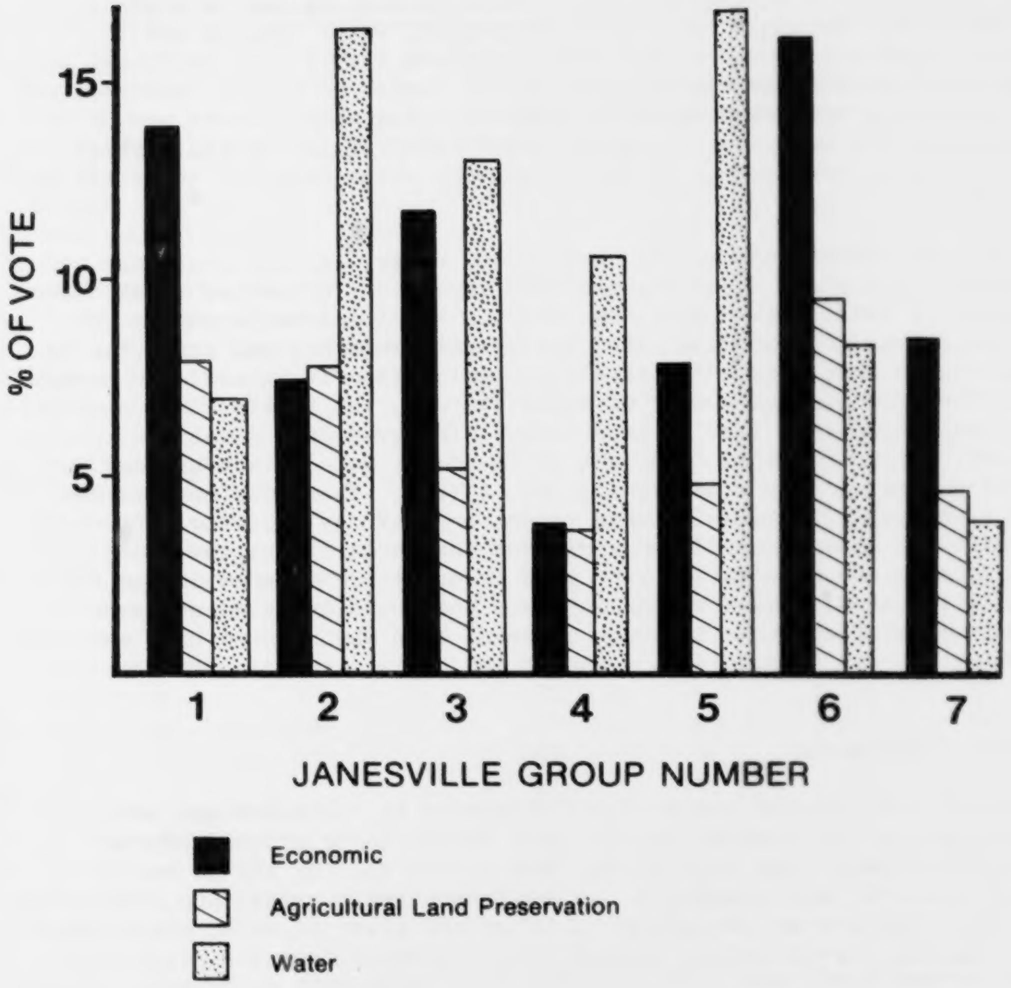

Figure 4. Percentage of the vote on the 30 most important concerns given to economics, agricultural land preservation, and water by Janesville groups.

TABLE 6. JANESVILLE WORKSHOP: HIGHEST RANKING CATEGORIES OF SITING CONCERNS BASED ON THE VOTE ON THE 30 MOST IMPORTANT CONCERNS

| | Concern category | Points | Percentage of total points | Times mentioned |
|---|---|---|---|---|
| 1. | Agricultural land preservation | 322 | 10.2 | 11 |
| 2. | Water | 319 | 10.1 | 23 |
| 3. | Economic | 288 | 9.2 | 21 |
| 4. | Wastes | 224 | 7.1 | 15 |
| 5. | Plant location | 209 | 6.6 | 21 |
| 6. | Need for plant | 202 | 6.4 | 13 |
| 7. | Conservation | 184 | 6.0 | 11 |
| 8. | Political/planning | 177 | 5.6 | 8 |
| 9. | Natural environment | 157 | 5.0 | 12 |
| 10. | Plant operation | 154 | 4.9 | 11 |
| 11. | Transmission lines | 151 | 4.8 | 10 |
| 12. | Social/cultural | 138 | 4.4 | 14 |
| 13. | Safety/security | 121 | 3.8 | 5 |
| 14. | Determine energy needs | 110 | 3.5 | 4 |
| 15. | Physical site characteristics | 104 | 3.3 | 12 |
| 16. | Environmental pollution | 86 | 2.7 | 6 |
| 17. | Air/climate | 82 | 2.6 | 5 |
| 18. | Health and radiation | 73 | 2.3 | 5 |
| 19. | Scenic/historic | 23 | 0.7 | 4 |
| 20. | Recreation | 11 | 0.3 | 2 |

Janesville participants ranked water, plant-location, and natural environmental concerns higher than the participants in the other three workshops ranked them. Perhaps the greater interest in the water question resulted from the emphasis placed on water, both its availability and quality, in the debate on the proposed Koshkonong power plant. Economic concerns, although ranked in the top three concern categories in the Janesville workshop, received a lower percentage of points than in any of the other workshops.

Janesville participants ranked the health-and-radiation and the growth categories lower than did the participants in the other workshops. Political and planning concerns received their highest rankings in the Janesville and Stevens Point workshops, probably because both workshops had a larger number of influential environmental and consumer-group members than the other workshops.

## EAU CLAIRE

The second power-plant-siting workshop was held on 27 April 1977 at the University of Wisconsin-Eau Claire. Of the 46 invited participants attending the all-day workshop, 25 were from Eau Claire County, 14 from Dunn, 8 from Chippewa, 5 from Pepin, and 2 from Clark. The participants represented a wide variety of interests, and an attempt was made to reflect this variety in the makeup of the six small groups. At the meeting were farmers, government officials (from various agencies such as the regional planning commission, municipal public works department, health department, and county supervisor), electric utility employees, educators (a school superintendent, a vocational education teacher, and a university instructor), various professionals (a lawyer, a writer, an isurance agent, several contractors, an accountant, a musician), general workers, and members of community organizations (League of Women Voters and environmental/consumer groups).

At present much of the electric power in the area is supplied by rural electric cooperatives, municipal companies, and one private utility, Northern States Power Company. Eau Claire was chosen for a workshop because of a local controversy over the proposed Tyrone Nuclear Energy Park in Dunn County. Informational hearings before the Wisconsin Public Service Commission on the advance plans for the Tyrone project and information programs by the University of Wisconsin Extension Service on topics such as transmission lines have been well attended by local people. Northern Thunder is one of the many groups in the area that are active in the power-plant-siting issue.

Participants and lists of concerns from the Eau Claire workshop appear in Appendix C.

### Overall Concerns

The major concern categories of the participants in the Eau Claire workshop were ranked according to the number of points they received (Table 7). The points each concern received as a percentage of total votes, the times the concern was mentioned, and the importance value and importance rank the concern category received are indicated in Table 7.

The overall concern list for the Eau Claire workshop is very similar to the concern list for all the workshops combined (Table 3). In both tabulations economic concerns received the most votes, followed by water concerns. Health-and-radiation and social/cultural concerns received higher ratings in the Eau Claire workshop than elsewhere.

On the basis of importance value, agricultural land preservation, which was mentioned only 16 times, was ranked as the most important concern category. Seventy-three economic concerns were mentioned, but the economic-concern category dropped to 14th in importance. Health-and-radiation concerns were second in importance, followed by environmental pollution concerns and waste concerns.

TABLE 7. EAU CLAIRE WORKSHOP: RANKING OF CATEGORIES OF SITING CONCERNS BASED ON THE VOTE ON ALL CONCERNS

| Concern category | Points | Percentage of total points | Times mentioned | Importance value (rank) |
|---|---|---|---|---|
| 1. Economic | 858 | 13.5 | 73 | 11.75 (14) |
| 2. Water | 516 | 8.0 | 35 | 14.7 (6) |
| 3. Health and radiation | 467 | 7.4 | 25 | 18.7 (2) |
| 4. Plant location | 393 | 6.2 | 28 | 14.0 (8) |
| 5. Agricultural land preservation | 354 | 5.6 | 16 | 22.13 (1) |
| 6. Wastes | 359 | 5.6 | 21 | 17.09 (4) |
| 7. Air/climate | 359 | 5.6 | 26 | 13.8 (9) |
| 8. Political/planning | 305 | 4.8 | 27 | 11.3 (16) |
| 9. Social/cultural | 304 | 4.7 | 25 | 12.2 (13) |
| 10. Physical site characteristics | 272 | 4.3 | 20 | 13.6 (10) |
| 11. Environmental pollution | 252 | 3.9 | 14 | 18.0 (3) |
| 12. Transmission lines | 246 | 3.8 | 27 | 9.1 (21) |
| 13. Natural environment | 211 | 3.3 | 23 | 9.2 (20) |
| 14. Transportation | 197 | 3.0 | 27 | 7.3 (23) |
| 15. Need for plant | 187 | 2.9 | 12 | 15.6 (5) |
| 16. Safety/security | 184 | 2.9 | 19 | 9.68 (19) |
| 17. Plant operation | 175 | 2.7 | 18 | 9.7 (18) |
| 18. Growth | 164 | 2.6 | 13 | 12.62 (12) |
| 19. Scenic/historic | 116 | 1.8 | 24 | 4.8 (26) |
| 20. Recreation | 91 | 1.4 | 12 | 7.6 (22) |
| 21. Land-use change | 86 | 1.3 | 6 | 14.3 (7) |
| 22. Conservation | 65 | 1.0 | 6 | 10.8 (17) |
| 23. Research | 70 | 1.0 | 6 | 11.7 (15) |
| 24. Insurance | 68 | 1.0 | 5 | 13.6 (10) |
| 25. Noise | 37 | 0.6 | 7 | 5.3 (25) |
| 26. Future generations | 14 | 0.2 | 2 | 7.0 (24) |

## The 30 Most Important Concerns

The results of the analysis of the final vote for the Eau Claire workshop are presented in Table 8. Economic concerns did not rank as high in the final vote as in the overall vote. In the final vote agricultural land preservation was the most important concern, followed by health and radiation, and plant location (Table 8). Safety/security concerns were more important in the final vote, and social/cultural concerns became less important.

TABLE 8. EAU CLAIRE WORKSHOP: HIGHEST RANKING CATEGORIES OF SITING CONCERNS BASED ON THE VOTE ON THE 30 MOST IMPORTANT CONCERNS

| | Concern category | Points | Percentage of total points | Times mentioned |
|---|---|---|---|---|
| 1. | Agricultural land preservation | 189 | 12.3 | 9 |
| 2. | Health and radiation | 183 | 12.0 | 14 |
| 3. | Plant location | 137 | 7.0 | 16 |
| 4. | Economic | 135 | 7.0 | 20 |
| 5. | Safety/security | 121 | 6.5 | 9 |
| 6. | Wastes | 120 | 6.5 | 9 |
| 7. | Water | 120 | 6.5 | 12 |
| 8. | Physical site characteristics | 114 | 6.0 | 9 |
| 9. | Political/planning | 94 | 5.0 | 12 |
| 10. | Growth | 92 | 5.0 | 10 |
| 11. | Conservation | 75 | 4.0 | 6 |
| 12. | Need for plant | 70 | 4.0 | 4 |
| 13. | Future generations | 64 | 3.5 | 4 |
| 14. | Transmission lines | 59 | 3.0 | 8 |
| 15. | Air/climate | 56 | 3.0 | 6 |
| 16. | Natural environment | 55 | 3.0 | 9 |
| 17. | Plant operation | 34 | 2.0 | 4 |
| 18. | Social/cultural | 26 | 1.4 | 7 |
| 19. | Research | 25 | 1.4 | 2 |
| 20. | Scenic/historic | 19 | 1.0 | 4 |

## Intergroup Differences

The votes received by the various concern categories in the six workshop groups were normalized (changed to a percentage of the votes for the group) so intergroup comparisons could be made. A comparison of the percentage of points received by three concern categories--economics, agricultural land preservation, and water--in the final vote in the six Eau Claire workshop groups reveals that, as in the other workshops, the groups were not consistent in their concerns (Figure 5). Some of the differences among groups can be explained by the makeup of the membership. Groups with members of Northern Thunder were concerned about radiation. In this workshop, groups with farmers showed more concern for agricultural land and transmission-line siting.

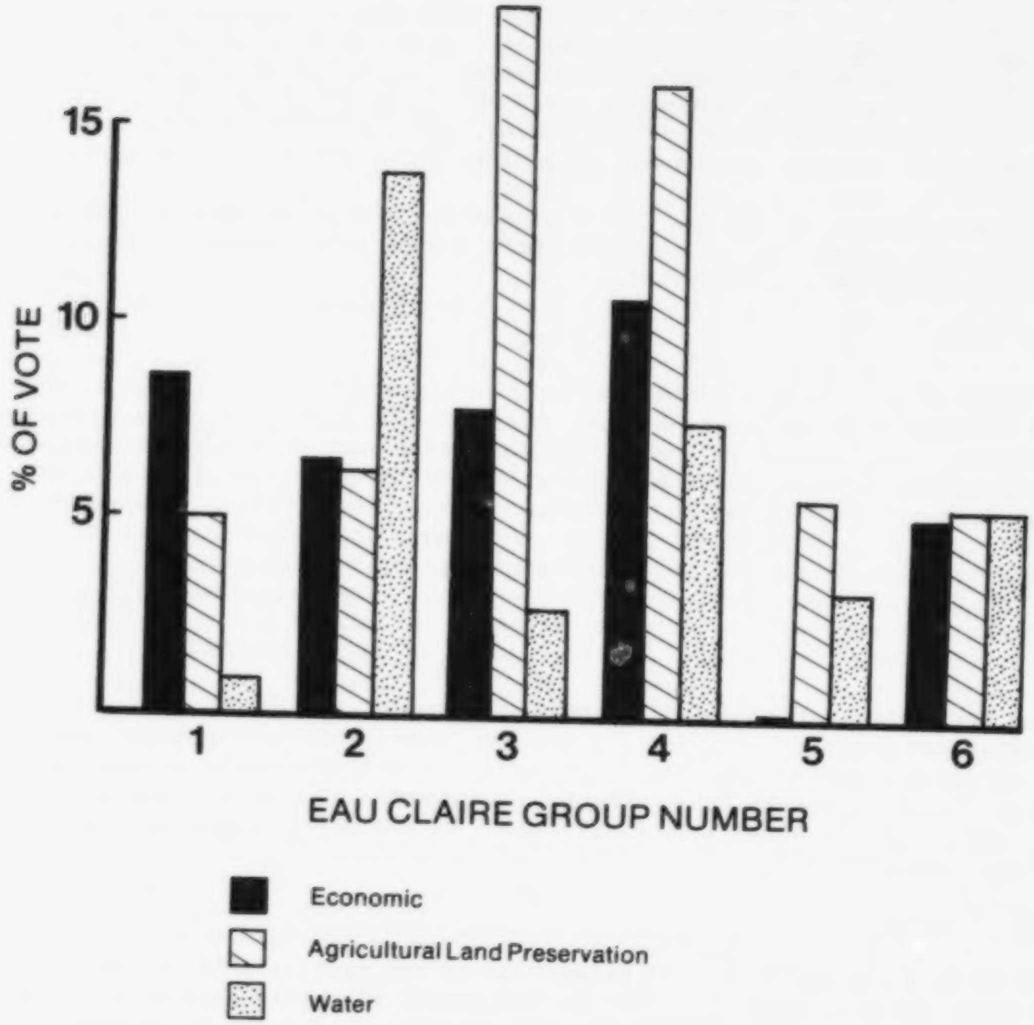

Figure 5. Percentage of the vote on the 30 most important concerns given to economic, agricultural land preservation, and water by Eau Claire groups.

### Conclusions

When the 30 most important concerns were voted on, Eau Claire participants rated the questions of health and radiation and agricultural land preservation higher than economic concerns, although economic concerns ranked first when all concerns were considered. Specific concerns, such as health and radiation and agricultural land preservation, were not mentioned often, but were important when they were mentioned. Economic concerns were not as specific. The economic concerns mentioned in every group included costs of the electricity for consumers, community costs of having the power plant, and jobs. Concerns such as noise, scenic values, and relocation of people were mentioned in all groups, but rarely were rated among the top concerns.

The participants in the Eau Claire workshop, as well as those in the other workshops, had a long list of concerns, both positive and negative, about which they wanted more information.

## STEVENS POINT

A power-plant-siting workshop was held in Stevens Point on 28 April 1977. The 58 Stevens Point participants came from a larger geographic area than the participants in any other workshop. In attendance were 20 residents from Wood County, 13 from Portage, 11 from Juneau, 10 from Marathon, and 3 from Adams. In this five-county area, as in the other workshop areas, there is a great deal of interest in power-plant siting. Presently, power is provided by 15 hydroelectric generating stations along the Wisconsin River, as well as a 135-MW coal-fired power plant in Marathon County. Construction of two power plants has been proposed in the next 10 years: a nuclear plant for Wood County and a coal-fired plant for either Adams or Juneau County.

The participants represented a broad spectrum of interests. Two groups in particular had a special interest in nuclear power-plant-siting questions: L.A.N.D. (League Against Nuclear Dangers), opponents of nuclear siting, and S.A.F.E. (Secure Adequate Future Energy), proponents of nuclear siting. Participants and the concern lists generated by the six Stevens Point groups are found in Appendix D.

### Overall Concerns

In Table 9 the major concern categories of the participants in the Stevens Point workshop are ranked according to the number of points they received in the overall vote. Also presented are the percentage of total votes each category received, the number of times the category was mentioned, and the importance value and rank for the category.

The Stevens Point concern list is very similar to the overall list for all the workshops (Table 3). In both tabulations economic concerns were mentioned the most frequently and received the most votes. Concerns for agricultural land preservation, wastes (disposal and use), air/climate, and social/cultural concerns also kept their rank in the two lists. Concerns bearing on political/planning, health and radiation, growth, and general

TABLE 9. STEVENS POINT WORKSHOP: RANKING OF CATEGORIES OF SITING CONCERNS BASED ON THE VOTE ON ALL CONCERNS

| Concern category | Points | Percentage of total points | Times mentioned | Importance value | (rank) |
|---|---|---|---|---|---|
| 1. Economic | 1401 | 15.2 | 87 | 16.1 | (12) |
| 2. Political/planning | 688 | 7.5 | 41 | 16.78 | (9) |
| 3. Health and radiation | 661 | 7.1 | 40 | 16.53 | (11) |
| 4. Growth | 572 | 6.2 | 29 | 19.7 | (5) |
| 5. Water | 568 | 6.2 | 33 | 17.2 | (8) |
| 6. Agricultural land preservation | 511 | 5.5 | 23 | 22.2 | (1) |
| 7. Wastes | 449 | 4.8 | 21 | 21.4 | (2) |
| 8. Plant location | 427 | 4.6 | 29 | 14.7 | (15) |
| 9. Air/climate | 422 | 4.6 | 23 | 18.34 | (7) |
| 10. Environmental pollution | 365 | 4.0 | 19 | 19.2 | (6) |
| 11. Safety/security | 363 | 4.0 | 23 | 15.78 | (13) |
| 12. Social/cultural | 312 | 3.2 | 26 | 12.0 | (21) |
| 13. Scenic/historic | 266 | 2.9 | 18 | 14.78 | (14) |
| 14. Physical site characteristics | 266 | 2.9 | 19 | 14.0 | (16) |
| 15. Natural environment | 264 | 2.9 | 26 | 10.15 | (24) |
| 16. Transmission lines | 254 | 2.8 | 21 | 12.09 | (20) |
| 17. Transportation | 233 | 2.5 | 17 | 12.94 | (19) |
| 18. Plant operation | 224 | 2.4 | 17 | 13.17 | (17) |
| 19. Need for plant | 217 | 2.4 | 11 | 19.72 | (4) |
| 20. Recreation | 207 | 2.2 | 18 | 11.5 | (22) |
| 21. Conservation | 141 | 1.5 | 7 | 20.14 | (3) |
| 22. Land-use changes | 133 | 1.4 | 8 | 16.6 | (10) |
| 23. Research | 91 | 0.9 | 7 | 13.0 | (18) |
| 24. Future generations | 68 | 0.7 | 6 | 11.3 | (23) |
| 25. Noise | 55 | 0.5 | 7 | 7.85 | (25) |
| 26. Insurance | 53 | 0.5 | 8 | 6.63 | (26) |

environmental pollution ranked higher at Stevens Point than at any of the other workshops. Water and plant-location concerns were lower for the Stevens Point workshop than for the overall vote of the four workshops.

Items such as taxes, agricultural land preservation, wastes, consumer costs, and conservation received the highest importance values. Overall, economic concerns were mentioned often, but did not receive as high an importance ranking as more specific concerns such as taxes and agricultural land preservation.

## The 30 Most Important Concerns

The results of the analysis of the final vote (the 30 most important concerns) for the Stevens Point workshop are presented in Table 10. In the final vote water concerns became more important, and economic concerns dropped in rank. In general, the rankings of concerns at Stevens Point correspond closely to the combined results from all four workshops (Table 3, Table 4).

TABLE 10. STEVENS POINT WORKSHOP: HIGHEST RANKING CATEGORIES OF SITING CONCERNS BASED ON THE VOTE ON THE 30 MOST IMPORTANT CONCERNS

| | Concern category | Points | Percentage of total points | Times mentioned |
|---|---|---|---|---|
| 1. | Water | 282 | 9.8 | 12 |
| 2. | Political/planning | 268 | 9.2 | 18 |
| 3. | Growth | 267 | 9.2 | 17 |
| 4. | Economic | 259 | 9.0 | 18 |
| 5. | Air/climate | 216 | 7.0 | 9 |
| 6. | Health and radiation | 186 | 6.4 | 6 |
| 7. | Physical site characteristics | 184 | 6.4 | 14 |
| 8. | Agricultural land preservation | 176 | 6.0 | 10 |
| 9. | Safety/security | 173 | 6.0 | 9 |
| 10. | Wastes | 163 | 5.6 | 10 |
| 11. | Plant location | 135 | 5.0 | 10 |
| 12. | Conservation | 121 | 4.0 | 11 |
| 13. | Social/cultural | 100 | 3.5 | 12 |
| 14. | Natural environment | 80 | 3.0 | 6 |
| 15. | Need for plant | 79 | 3.0 | 4 |
| 16. | Transmission lines | 44 | 2.2 | 7 |
| 17. | Future generations | 38 | 1.5 | 1 |
| 18. | Recreation | 26 | 1.3 | 5 |
| 19. | Scenic/historic | 24 | 0.8 | 3 |
| 20. | Plant operation | 17 | 0.7 | 1 |
| 21. | Transportation | 14 | 0.5 | 2 |
| 22. | Other | 4 | 0.5 | 1 |

## Intergroup Differences

The votes received by the various concern categories in the six Stevens Point workshop groups were normalized (changed to a percentage of the total votes for the group) so that intergroup comparisons could be made. In the final vote the groups were not consistent in their concerns (Figure 6), probably because it was not possible to get a balance of interests in each

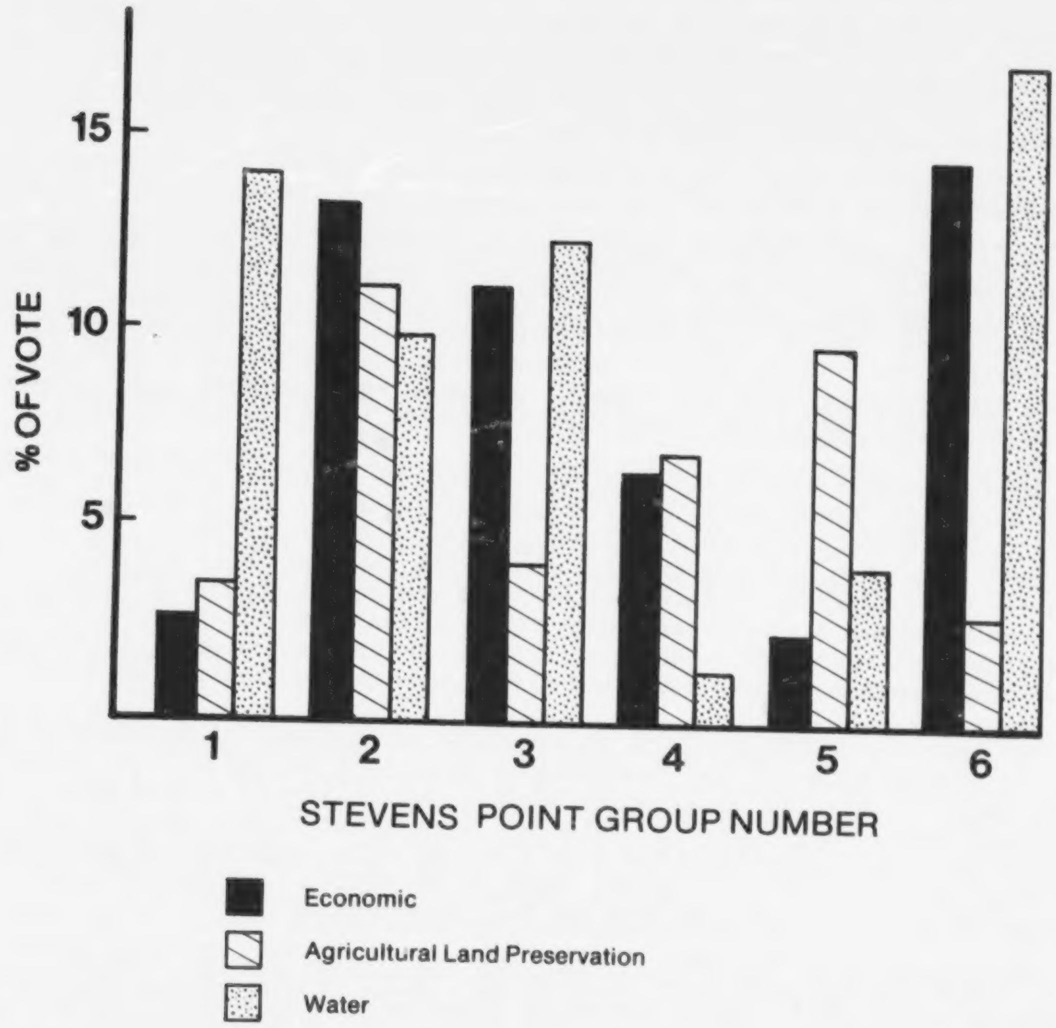

Figure 6. Percentage of the vote on the 30 most important concerns given to economic, agricultural land preservation, and water by Stevens Point groups.

group. Differences among groups were particularly noticeable in categories such as health and radiation and conservation. Almost all the votes were contributed by one group, a group which had more members of L.A.N.D. than other groups.

Group composition, however, does not always account for the differences in the group votes. The number of farmers in a group did not seem to affect the concern for agricultural land preservation. In fact, the most heavily business-industrial-urban groups gave this category the highest priority. On the other hand, questions such as water supply and availability seemed to receive more emphasis in groups with more farmers.

## Conclusions

As in the other workshops, the categories mentioned most often and ranked as most important in the Stevens Point workshop were those concerned with the effect of power-plant location on the lives of human beings (for example, economics, jobs, growth, human health and radiation effects, and water supply and availability). Items such as water pollution, preservation of natural areas, scenic values, land-use changes, and other environmental concerns were mentioned often, but in most cases did not receive large numbers of votes.

Several concern categories were rated higher at Stevens Point than at the other workshops, namely political/planning, air/climate, and growth. In the political/planning sphere much participant skepticism was evident: "Do engineers know what they are talking about? Are the real facts presented? What are the differences between actual needs and utility projects?" Growth concerns sometimes favored power-plant construction (more electricity equals more jobs; more electricity equals more power for irrigation which equals more food) and sometimes opposed new power plants (growth unsuited for an area).

Rankings at the Stevens Point workshop for agricultural land preservation, waste disposal, conservation, transmission lines, and the natural environment were somewhat lower than at other workshops. Agricultural concerns were expressed most often in terms of water and electric-power availability for irrigating crops. Impacts on the area's unique crops--potatoes, cranberries, and dairy products--were mentioned. Many of the agricultural concerns were influenced by the drought the area had been experiencing.

The Stevens Point participants compiled the longest list of research needs, including more factual studies on biological effects; comparisons of radiation levels from coal, nuclear, geothermal, and solar generation; explanation of general radiation versus power-plant radiation; facts on air and water monitoring; and independent monitoring. Participants also questioned how to address the necessary trade-offs for power-plant siting, how to interpret environmental impact statements, and how to differentiate between emotional and factual studies.

Stevens Point workshop participants brought up moral issues as well as specific concerns: responsibilities to future generations, worldwide responsibilities, questions of conservation and American freedom, and questions of nuclear security and freedoms.

The Stevens Point workshop participants clearly wanted to know more about many power-plant-siting concerns, regardless of whether they felt negative, positive, or neutral about power plants.

## SHEBOYGAN

The fourth power-plant-siting workshop was held in Sheboygan on 3 May 1977. The 43 workshop participants came from Sheboygan (29), Manitowoc (9), and Kewaunee (3) Counties, all eastern Wisconsin counties bordering Lake Michigan. Two participants were from outside the workshop area.

Power-plant-siting interest in the area is high. In some ways more participants in the Sheboygan workshop were familiar with power-plant siting based on their actual experiences than in the other workshops. The area has two nuclear power plants, Point Beach and Kewaunee, on the shores of Lake Michigan, as well as the 500-MW coal-fired plant in Sheboygan, which is being expanded. The Sheboygan workshop area also includes a proposed nuclear site, Haven, in Sheboygan County.

The workshop participants included elected officials (6); government employees, including planners, a forester, and a civil defense worker (8); members of community organizations (8); members of environmental and consumer groups (8); farmers (4); business men and women, including utility employees (3); people interested in recreation and tourism and other professionals, including educators (4). As in the other workshop locations, the Sheboygan area has active groups with a special interest in power-plant siting, such as the Safe Haven group.

### Overall Concerns

The major concern categories developed in the Sheboygan workshop were ranked according to the number of points they received (Table 11). The participants were more concerned about economic questions than were the participants in other workshops. These concerns were mentioned 70 times and accounted for over 15% of the total concerns by points. More weight was also given to health and radiation, waste use and disposal, air and climate, plant operation, and physical site characteristics than in the other workshops. Overall, participants in the Sheboygan workshop showed less concern for water, political/planning, and plant location. In the Sheboygan workshop the need for the power plant, conservation, agricultural land preservation, waste use and disposal, and taxes received high importance values. Also rated important were Lake Michigan and more general water concerns.

### The 30 Most Important Concerns

The final vote (the 30 most important concerns) for the Sheboygan workshop (Table 12) was generally consistent with the rankings given to all concerns (Table 11). The most noticeable difference is that conservation became very important (second only to economic concerns) in the final vote. Growth, natural environmental, and agricultural land preservation also became more important in the final vote. On the other hand, water, plant-operation, and physical site concerns dropped in importance in the final vote.

TABLE 11. SHEBOYGAN WORKSHOP: RANKING OF CATEGORIES OF SITING CONCERNS BASED ON THE VOTE ON ALL CONCERNS

| Concern category | Points | Percentage of total points | Times mentioned | Importance value | (rank) |
|---|---|---|---|---|---|
| 1. Economic | 909 | 15.6 | 70 | 12.98 | (15) |
| 2. Health and radiation | 412 | 7.2 | 26 | 16.1 | (8) |
| 3. Wastes | 377 | 6.5 | 20 | 18.85 | (4) |
| 4. Water | 314 | 5.3 | 25 | 16.56 | (6) |
| 5. Air/climate | 305 | 5.2 | 20 | 15.25 | (11) |
| 6. Plant operation | 303 | 5.2 | 26 | 11.65 | (18) |
| 7. Agricultural land preservation | 279 | 4.8 | 13 | 21.46 | (3) |
| 8. Physical site characteristics | 279 | 4.8 | 17 | 16.4 | (7) |
| 9. Conservation | 276 | 4.8 | 11 | 25.09 | (2) |
| 10. Natural environment | 268 | 4.6 | 23 | 11.65 | (17) |
| 11. Growth | 242 | 4.1 | 18 | 13.4 | (14) |
| 12. Scenic/historic | 223 | 3.8 | 25 | 8.92 | (21) |
| 13. Plant location | 204 | 3.5 | 13 | 15.69 | (9) |
| 14. Transmission lines | 202 | 3.5 | 13 | 15.54 | (10) |
| 15. Environmental pollution | 202 | 3.5 | 14 | 14.43 | (13) |
| 16. Political/planning | 182 | 3.0 | 24 | 7.58 | (23) |
| 17. Recreation | 174 | 2.9 | 17 | 10.24 | (19) |
| 18. Transportation | 153 | 2.6 | 18 | 8.5 | (22) |
| 19. Safety/security | 120 | 2.1 | 10 | 12.0 | (16) |
| 20. Need for plant | 115 | 1.9 | 4 | 28.75 | (1) |
| 21. Social/cultural | 73 | 1.2 | 11 | 6.64 | (25) |
| 22. Future generations | 58 | 0.9 | 4 | 14.5 | (12) |
| 23. Insurance | 51 | 0.8 | 5 | 10.2 | (20) |
| 24. Lake Michigan | 50 | 0.8 | 3 | 16.67 | (5) |
| 25. Land-use changes | 46 | 0.7 | 7 | 6.57 | (24) |

### Intergroup Differences

The votes received by the various concerns categories in the five Sheboygan workshop groups were normalized (changed to a percentage of the total votes for the group) so that intergroup comparisons could be made. The groups' final voting records were compared for three concern categories--economics, agricultural land preservation, and water--the procedure followed in the analysis of all the workshop results. The groups were not consistent in their concerns (Figure 7); as expected, identical interests in each group cannot be obtained.

TABLE 12. SHEBOYGAN WORKSHOP: HIGHEST RANKING CATEGORIES OF SITING CONCERNS BASED ON THE VOTE ON THE 30 MOST IMPORTANT CONCERNS

| | Concern category | Points | Percentage of total points | Times mentioned |
|---|---|---|---|---|
| 1. | Economic | 262 | 14.5 | 20 |
| 2. | Conservation | 190 | 10.5 | 8 |
| 3. | Health and radiation | 174 | 9.6 | 9 |
| 4. | Wastes | 168 | 9.0 | 13 |
| 5. | Agricultural land preservation | 144 | 8.0 | 10 |
| 6. | Growth | 127 | 7.0 | 14 |
| 7. | Water | 95 | 5.0 | 8 |
| 8. | Natural environment | 82 | 4.5 | 8 |
| 9. | Plant location | 57 | 3.0 | 4 |
| 10. | Air/climate | 52 | 2.8 | 5 |
| 11. | Plant operation | 47 | 2.6 | 3 |
| 12. | Future generations | 47 | 2.6 | 3 |
| 13. | Safety/security | 40 | 2.2 | 4 |
| 14. | Transmission lines | 39 | 2.0 | 6 |
| 15. | Political/planning | 37 | 2.0 | 7 |
| 16. | Need for plant | 35 | 2.0 | 4 |
| 17. | Recreation | 30 | 1.6 | 7 |
| 18. | Social/cultural | 19 | 0.9 | 5 |
| 19. | Lake Michigan | 16 | 0.8 | 3 |
| 20. | Insurance | 8 | 0.4 | 1 |
| 21. | Scenic/historic | 8 | 0.4 | 2 |

Four of the five Sheboygan groups were most concerned about economic questions (Figure 7). In four groups agricultural concerns received a high percentage of votes. Only two groups, however, were responsible for the high rating given to water. For some other concerns, such as conservation, health and radiation, and wastes, the Sheboygan groups were much more consistent.

## Conclusions

Economic concerns, both for and against power-plant construction, received a higher rating at the Sheboygan workshop than at any other. Once again, those items were mentioned and ranked highest which concerned the effects of power-plant location on the lives of human beings (economics, jobs, taxes, growth, and human health and radiation).

The presence of Lake Michigan had a significant effect on regional power-plant-siting concerns. It may seem inconsistent that half the Sheboygan

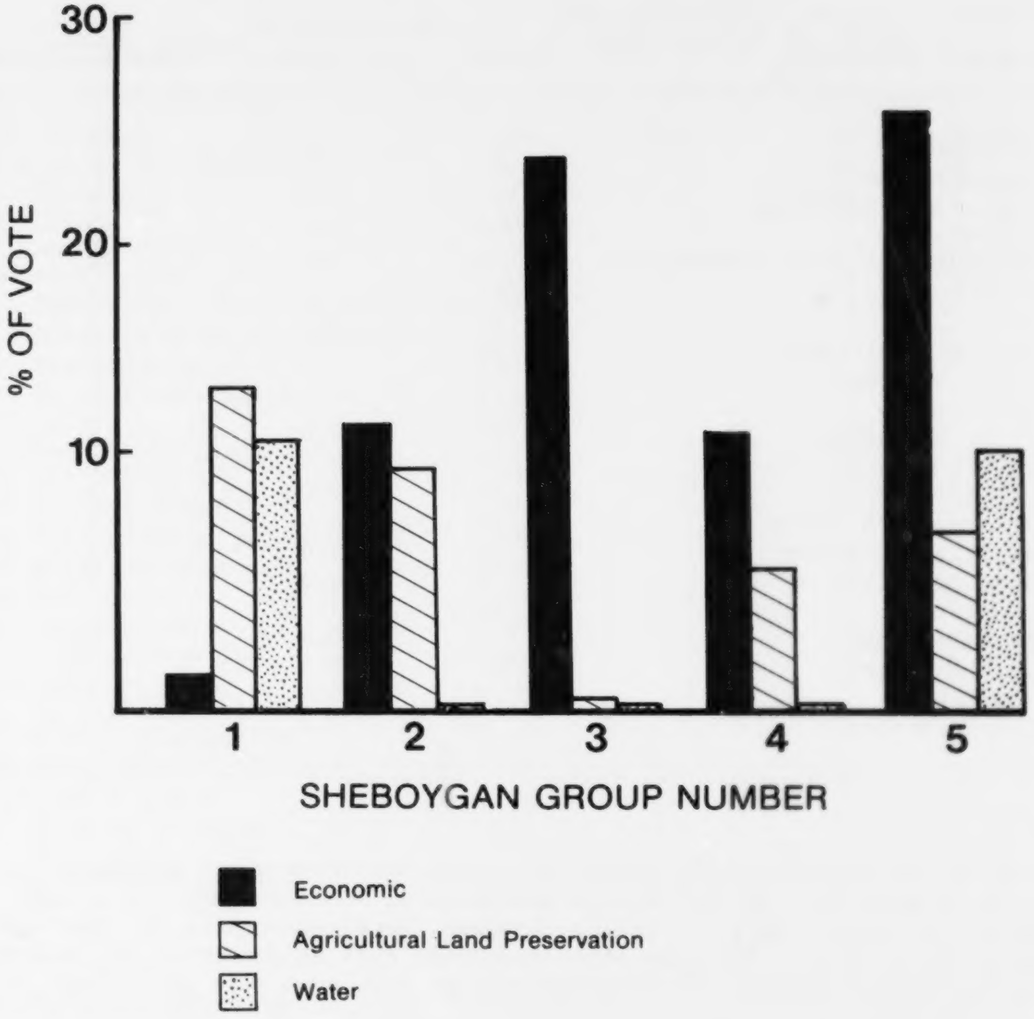

Figure 7. Percentage of the vote on the 30 most important concerns given to economic, agricultural land preservation, and water by Sheboygan groups.

participants rated the Great Lakes as suitable sites for power-plant siting (as reported in Section 3), and yet water and plant-location concerns were lower overall in the Sheboygan workshop. The explanation is that Sheboygan participants were very concerned about water and Lake Michigan. Their water concerns were different and not as great in number, but certainly rated high in importance. There was little concern about water supply and availability. Instead, the water concerns focused on water quality and impacts on Lake Michigan. Concern was not so much addressed to one site as to the effect on the whole lake system: for example, the cumulative effects of several power-plant sites, the likelihood of the dispersion of radiation contamination by the Great Lakes, and changes in longshore currents. Concern for the area's special Great Lakes resource also came up in several different categories: Stability of bluffs, preservation of dunes, and preservation of historic shoreline properties.

Because of the number of power plants in the area and the participants' familiarity with them, many of the Sheboygan concerns, both positive and negative, were more specific than those of other workshops. These included such issues as the good fishing in the power-plant outflow, public access to the lake, educational and tourist attraction of the site, the planning for placement of a power plant, sewage treatment, and industrial discharges. Sheboygan workshop participants readily brought up items from their own experience: Traffic tie-ups in Sheboygan from coal shipments, loss of land, the need for relocating roads away from nuclear plants, and the need for better fire and police protection.

Sheboygan participants also had many concerns similar to those of other workshop participants. The question of nuclear entombment came up several times. Participants were also concerned about keeping the public informed, justifying power plants on the basis of third-party projections of demand, and understanding all the statistics (plume dimensions, size, velocities, etc.) in environmental impact statements. They also sought information on how to make choices for decisionmaking and what resources are available for verifying environmental impact statements.

In spite of their relative familiarity with power plants, Sheboygan participants listed many concerns on which they wished more information.

# SECTION 5

# THE SURVEY

The purpose of the workshops was to elicit the concerns, attitudes, and values of invited participants on power-plant siting. Project researchers and Public Service Commission officials were specifically interested in what choices participants would make between various land-use categories (e.g., industrial areas, agricultural areas, natural areas) for siting power plants and transmission lines. Also of interest were participants' reactions to the supplying of power by a local power plant to other areas in the state, the use of one large or several smaller plants to meet approximately the same energy needs, and general reactions to Wisconsin tax laws. Since it was impossible to address all of these questions by using the small-group method, a questionnaire was designed for use in a survey.

Survey results from the four workshops and from different interest groups were compared and one of the original goals of the project thus was partially achieved. In addition, the survey showed that no one interest or age group was over-represented or omitted at the workshops. Finally, filling out the questionnaire gave participants the opportunity to comment on their experiences at the workshop.

## METHODS

The surveys were distributed to workshop participants at registration, and completed surveys were returned by mail after the workshop. One hundred and ninety participants completed the surveys. A sample survey is found in Appendix F.

The survey was modified slightly after the first workshop. Participants felt that they could not make siting choices for both coal and nuclear plants at one time. Thus, for the remaining three workshops this question was repeated, once for a nuclear plant and once for a coal-fired plant.

The surveys were analyzed using STATJOB programs at the Madison Academic Computing Center.

## RESULTS

### The Participants

The participants represented a broad spectrum of age groups and professional backgrounds. Of those who completed the questionnaire, 26.7% were age 21-35, 28.3% were 36-50 years old, and 45% were 50 or older. Of these respondents 13.2% were farmers, 14.9% were business people, 11% were educators, 8.2% were government officials or employees, 14.3% represented other professions (such as doctors, historians, and artists), and 38.1% were employed in other fields, were housewives, or were retired. The percentage of government officials identified by the survey was much lower than the actual percentage among the participants, a possibly because government workers primarily identified themselves by occupation and not as government employees.

Workshop members tended to be long-term residents who were very active in their communities: 64.7% had lived in their current home area for more than 10 years, 56.3% were currently members of civic organizations, and 42.1% belonged to professional groups. In addition, an average of 31.3% participated in other types of organizations (agricultural, environmental, business, political, and recreational). A high proportion reported that they lived within 5 miles of an existing plant (27.9%), or that they could see a power plant (12.6%) or high-voltage transmission lines (35.3%) from where they lived.

### Opinions About Plant Size and Location

The response of workshop participants tended to be much more favorable toward the location of a plant in their area if that plant would supply energy locally, rather than to other parts of the state (Table 13).

To supply the same energy demand, several smaller plants were judged better than one large plant by 45.8% of the participants. One large power plant was preferred by 36.3%, and 10% felt that one large plant was about the same as several smaller plants.

About half (51.2%) answered that the new tax laws had changed the way they felt toward the construction of a power plant in their community. Of these, 76% reported that their feelings had become more negative.

### Land-Use Ratings

Participants were asked to rate several land-use categories for their suitability for a power plant. People at the Janesville workshop considered both coal and nuclear plants in one rating, but the other workshops rated suitabilities for coal and nuclear facilities separately. However, since no significant difference emerged between the combined and separate ratings, one set of ratings (combined coal/nuclear for Janesville, and nuclear for the other workshops) is presented in Table 14. (One exception was that Great Lakes shorelines were rated as somewhat more suitable for nuclear than for coal-fired plants.)

TABLE 13: REACTION OF PARTICIPANTS AS DETERMINED BY SURVEY TO THE ESTABLISHMENT OF A LOCAL POWER PLANT TO SERVE (1) LOCAL OR (2) NONLOCAL ENERGY NEEDS

| | Reaction (percentage of respondents) | | |
|---|---|---|---|
| Area of energy use | Negative | Neutral | Positive |
| (1) Power plant supplying energy locally | 19.2 | 10.7 | 70.1 |
| (2) Power plant supplying energy to other parts of the state | 47.5 | 15.7 | 36.7 |

TABLE 14: RATING BY WORKSHOP PARTICIPANTS OF LAND-USE CATEGORIES FOR USE AS POWER-PLANT SITES

| | Rating (percentage of respondents) | | |
|---|---|---|---|
| Land-use category | Poor | Good | No opinion |
| On Great Lakes shores | 36.35 | 57.2 | 5.95 |
| Near Great Lakes shores | 44.7 | 51.5 | 2.65 |
| In/near heavy industrial areas | 44.7 | 51.7 | 2.65 |
| On/near river banks | 47.25 | 47.15 | 6.1 |
| In/near forests | 47.05 | 46.5 | 6.45 |
| In/near light commercial areas | 53.6 | 36.6 | 7.7 |
| In/near agricultural land | 57.8 | 36.2 | 6.0 |
| On/near shores of smaller lakes | 65.4 | 25.3 | 9.4 |
| In/near wetlands | 69.25 | 21.95 | 8.8 |
| Near parks | 75.7 | 13.0 | 11.3 |
| In/near residential areas | 90.85 | 5.35 | 3.75 |

The shorelines of the Great Lakes and industrial areas were clearly felt to be the most suitable sites for power-generating facilities. These choices reflect the strong concerns over sufficient water supply and the use of existing facilities, which were mentioned frequently during workshop discussions. River banks, again reflecting the need for water, were ranked next in suitability. Agricultural land was ranked less suitable than light commercial areas and forests. Shores of smaller lakes and wetlands were next in suitability. Parks and residential areas were definitely considered the poorest locations for power plants.

The survey also ranked land-use types for their suitability for high-voltage transmission lines (Table 15). Industrial areas received the most votes (by a margin of 25.5%). Interestingly enough, agricultural land received the second highest number of votes for most suitable and the third highest number of votes for least suitable. This apparent split of sentiment may represent a difference of opinion between farmers and other workshop participants (Table 16). Wetlands, forests, and lakeshores, in that order, ranked next in votes for most suitable areas. None of these categories showed either a positive or negative trend in rankings; that is, each of the eight possible ranking positions received approximately the same percentage of votes. The category that was ranked sixth in suitability for transmission lines--commercial areas--received a higher percentage of votes for second most suitable than did any other land-use type. It may be, therefore, that commercial areas are actually felt to be more suitable than wetlands, forests, and lakeshores. Once again, parks and residential areas were overwhelmingly voted least suitable; only 21.2% of the participants placed residential areas as one of the four most suitable sites, and 42.8% placed them as least suitable.

TABLE 15: RANKING BY WORKSHOP PARTICIPANTS OF LAND-USE CATEGORIES FOR USE AS TRANSMISSION-LINE SITES

| Land-use type | Ranking (percentage of respondents) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Industrial | 46.6 | 14.8 | 4.5 | 6.2 | 10.8 | 7.4 | 6.3 | 3.4 |
| Agricultural land | 21.1 | 7.4 | 18.3 | 13.1 | 12.0 | 6.8 | 6.3 | 14.8 |
| Forests | 10.8 | 14.8 | 14.8 | 14.8 | 5.7 | 16.0 | 11.4 | 11.4 |
| Wetlands | 11.0 | 11.6 | 12.1 | 14.4 | 12.1 | 13.9 | 11.6 | 13.3 |
| Shorelines | 7.6 | 5.8 | 11.1 | 18.1 | 14.0 | 14.6 | 14.6 | 14.0 |
| Light commercial | 3.4 | 39.2 | 17.6 | 9.0 | 10.2 | 9.0 | 8.5 | 2.8 |
| Parks | 1.1 | 2.3 | 4.7 | 10.5 | 24.6 | 17.5 | 21.0 | 18.1 |
| Residential | 0.005 | 0.01 | 12.6 | 8.6 | 4.6 | 10.3 | 18.9 | 42.8 |

TABLE 16: EFFECT OF OCCUPATION OF RESPONDENTS ON THEIR RANKING OF THE USE OF AGRICULTURAL LAND FOR TRANSMISSION LINES

| Occupational group | Ranking (percentage of respondents) | | | | | | |
|---|---|---|---|---|---|---|---|
| | Most suitable 1 | 2 | 3 | 4 | 5 | 6 | Least suitable 7 |
| Farmers | 4 | 8.7 | 8.7 | 18.3 | 26 | 0 | 34.8 |
| Business people | 9.0 | 22.7 | 27.3 | 22.7 | 9.0 | 4.5 | 4.5 |
| Educators | 0 | 10.0 | 20.0 | 5.0 | 10.0 | 25.0 | 20.0 |
| Government workers and other | 7.3 | 19.5 | 22.0 | 12.2 | 12.2 | 14.6 | 7.3 |

In summary, industrial areas were viewed favorably as sites for power plants and lines, whereas residential areas and parks were viewed very unfavorably for this purpose. The relative ranking of the other land-use categories is not as clearly defined.

## Comparison of Survey Results Among Workshops

As was the case with the lists of concerns discussed in the previous section, no large differences in responses to questions or in patterns of answers were found among workshops. However, some small differences did emerge in responses to individual questions. The workshops differed in some ways in their ranking of suitability of various land-use categories for nuclear plants. Janesville participants were more likely to rank industrial areas as most suitable, and the Sheboygan workshop rated shorelines as the most suitable. The workshops also differed in the distance participants lived from a plant and whether or not they could see a plant from where they lived. More Sheboygan and Eau Claire participants reported that they lived within 5 miles of a plant, probably because of the Edgewater plant in Sheboygan and the small rural cooperatives scattered throughout the Eau Claire area. More Sheboygan people (31.58%) also reported that they could see a plant from where they lived.

## Comparison of Survey Results Among Occupational Groups

Overall, differences in attitudes between different occupational groups were not statistically significant. However, there were some interesting differences between specific occupational groups on particular questions. More farmers (45.8% of those at the workshops) than any other group reported that they could see high-voltage transmission lines from where they lived.

Farmers were also more likely to rate agricultural land as very unsuitable for high-voltage transmission lines. Many (45.8%) of the farmers rated agricultural land as the least suitable area for transmission lines, compared to an average of 13% for all other occupational groups. In contrast, 30.4% of business people rated agricultural land as the most suitable for transmission lines. Farmers were also likely to rank the suitability of agricultural land for nuclear plants lower than did other groups.

## SECTION 6

## COMMENTS ON THE WORKSHOPS

Participants in all four workshops were asked to give an overall rating of the workshop; a tabulation of their votes is given in Table 17.

Participants gave quite high ratings to the power-plant-siting workshops: 82.5% judged their experience as "good" or "excellent," while 14.4% rated the workshops as "fair" and 0.03& as "poor."

TABLE 17. RATING OF THE WORKSHOPS BY PARTICIPANTS

| | Rating (number of votes) | | | | |
|---|---|---|---|---|---|
| Workshop | NO COMMENT | POOR | FAIR | GOOD | EXCELLENT |
| Janesville | 10 | - | 7 | 35 | 9 |
| Eau Claire | 5 | 1 | 6 | 21 | 6 |
| Stevens Point | 4 | 2 | 9 | 21 | 16 |
| Sheboygan | 3 | 2 | 2 | 17 | 14 |

The participants were also asked to comment on any aspect of the workshop or concerns addressed. Many of the participants (51%) took advantage of the space provided in the survey for their comments. These comments, compiled from all four workshops, are helpful to those interested in power-plant-siting criteria and to those considering similar workshops. The comments (presented in Appendix G), generally speak for themselves and bring out many of the difficulties of the workshops. Remarks most frequently pertained to (1) complaints with workshop scheduling; (2) time constraints; and (3) problems with the format, such as general concerns getting more votes than specific ones and some concerns overlapping others.

In choosing the locations, dates, participants, format, and even methods of presenting the results, obviously choices had to be made. Some decisions were based on experience with similar programs and some were based on recommendations; some techniques changed with experience. For example, after the Janesville workshop, the survey was changed slightly and group leaders' explanations of voting procedures were made more explicit. The value of the workshops depends on how useful the findings prove to be in decisions on the siting of power plants. One of the primary advantages of the workshops was that they provided an opportunity for people of different backgrounds, interests, and experiences to examine together a controversial and frustrating issue.

The energy, enthusiasm, and dedication of the workshop participants were greatly appreciated. Their willingness to give their time helped to make public involvement in energy and natural-resource issues a reality.

# APPENDIX A

## COMPREHENSIVE LIST OF POWER-PLANT-SITING CONCERNS

### ECONOMIC

#### Taxes

Tax base - increased tax base; added tax revenue to municipality; taxes paid by power plants; question of the loss of taxable land; added tax revenue to municipality;

Tax structure - unfair tax structure;

Tax distribution - distribution of utility tax; inequitable tax redistribution;

Tax rate - increased taxes due to influx of population when a plant is built; increased local property taxes to support increased services;

Taxes and local government - change tax bill to benefit local government; greater tax return to local government -- first 5 years; taxation of the utility should be adequate to compensate the local government units for the increased services (roads, police, etc.) during plant construction; better tax returns to local government to dull local opposition.

#### Consumer costs

Cost of electricity - cost to consumer; energy affordable to all; possible decrease in electric costs; costs of electricity particularly as it affects those on fixed incomes or those with special needs; ratepayers should not have to absorb costs of siting changes; electric rates should reflect true cost; increasing costs if more power not produced;

Costs and construction - cost of construction; costs per life of plant; construction time and costs;

Financing - capital loans; need for information on the type of financing available; competition for capital investment dollars.

#### Community costs

Housing - need for housing in local area; mobile home park proliferation;

Municipal services - cost of municipal services, fire, police; sewers for temporary construction workers; desire for federal government loans (low interest) for local government cost for services;

Community services - increased expenses to community: roads, schools, hospitals, and social service agencies.

### Fuels

Cost - choose fuel type for least cost; current and future fuel cost; need to know cost of radioactive waste disposal; going into plutonium economy, domestic vs. foreign leasing of national forests for uranium mining;

Availability - depletion of non-renewable resources; availability of uranium; priorities for use of coal; priority for use of oil;

Type - use of high-sulfur coal; access to low-sulfur fuel; cost advantages and flexibility of nuclear power.

### Land values

Cost - price of land; cost of land for site;

Changes in land values - (up/down); accelerates increase in land value; devaluation of surrounding homes; effect on property values, both inflation of value and detriment resulting from increased taxes; keep land purchases secret to avoid speculation.

### Jobs

Number - number of jobs during construction/operation; increase in employment; reduction in jobs caused by automation of newer power plants; labor force generated -- both primary and secondary; employment from acquisition of raw materials (miners, truckers, etc.); more work in area;

Jobs and energy - need to provide energy for employment of citizens; employment and adequate energy independence;

Local or outside labor force - availability of skilled personnel; regional employment; need to know the kind of training necessary; need to know if employees will be drawn from local area;

Jobs and wages - need to know the salary scale; effect on local wage scale.

### Costs versus benefits

Cost versus benefits - acceptable cost/benefit ratio;

Growth - healthy economic growth versus minimal economic growth; beneficial economic impact on business; economic ceiling on growth;

Costs - prediction of future energy costs; nuclear plants are too expensive; costs for various types of plants; economic effect on current energy providers; economic effect after construction workers leave; need to know if construction of new plant is necessary when additional power could be supplied by upgrading existing units;

Economic/ecological tradeoffs - costs of pollution control devices; economics of upholding high environmental standards for coal plants;

Profits - only the company and employees make the profits.

## AGRICULTURAL LAND PRESERVATION

Agricultural preservation - removal of agricultural land; agricultural land preservation; using agricultural land; don't split up agricultural land; amount of loss and disruption to local based agriculture; preserve prime agricultural land.

Agricultural impacts - affecting food supply; danger to milk production from debris effects on forage; preserve farmland for food production; impacts on domestic animals; desire to know if local crop values will decline.

## WATER

### Availability/supply

Supply - for everything; effect of power plant's demand on other water users for power plant; economics of supply; need to know amount of water remaining for public after power plant is supplied;

Drought - need to know how water is allocated;

Drinking water - effect on drinking water;

Cost - impact on cost of water for household use;

Transportation - water availability for transportation;

Water-table disruption - effects on underground water supply; impact on domestic and irrigation wells; no limit on water for irrigation; drying up wells; water drawdown;

Enough water for plants and animals in streams; using hydro power would increase supply in an area;

Effect of weather on water availability.

### Pollution

Water quality - minimize impact on water quality; water quality (cleanliness and temperature); adequate protection against polluting rivers; radioactive pollutants in water; danger to irrigation water from nuclear radiation; radioactive water carried by Great Lakes elsewhere; discharge of chlorine and other pollutants from treating intake water; water pollution causing fish and vegetation kills; heavy metals discharge into surface waters; contamination; particulate and chemical discharge; decrease in oxygen in lake or river; leaching from on-site coal piles; water-table conditions for ash disposal;

Temperature effect - thermal pollution; benefits of warm water -- including purification;

Effect on longshore currents; damming for hydro; damming effects on flooding.

## GROWTH

Positive - assures no brown-outs; assure enough power; need adequate regional supply; electricity assures jobs; electricity assures higher standard of living; industrial opportunities; new businesses; need energy for home heating; encourages industry; new electricity for food production; effects of related development; generally positive effects on the community; income to local businesses; increase in land use for agriculture because of increased available electricity; greater electric energy in area.

Negative - economic growth unsuited to area; availability of power accelerates growth, affects quality of life; conservation of energy hard as more and more power plants built; growth may occur where growth not wanted.

Neutral - effect on future growth and development; will there be growth of commercial and industrial areas near the plant; need to determine kinds of growth desired.

## POLITICAL/PLANNING

### Who has decision-making power?

Government level - need to know which government level and who determines land use; reduce governmental restrictions and allow private enterprise more freedom; willingness of area to adopt and enforce air and water quality standards; concern with over-regulation by agencies of local residents and of power plant; lack of coordination between various governmental levels; monopoly potential of present energy supply companies; power and authority of regulatory agencies.

Rural rights - concern for the rights of communities and the need to return the ability to make their own decisions; need to know if small towns are expendable; local citizens have much less control over their lives; need to know if rural people are more expendable; public opinion; public acceptance of need for plant; local polarization; cost of community support; the will of the people should rule.

Planning/zoning - advanced planning to rectify possible damage to the environment; follow zoning laws; change in zoning patterns; compatibility with regional plans; land use legislation; local zoning should not supercede regional needs; adequate plans should be developed prior to construction -- between utility and local municipality and business community to provide necessary services; what procedure will be used to change zoning designation if necessary; land development controls; need for land-use regulation where none exists; need for regional plan first before selection of individual sites; coordination of site selection with community planning; no construction before environmental impact statements; equitable regulation of environmental aspects.

Condemnation, eminent domain, compensation - local decision on eminent domain; land condemnation; problems resulting from condemnation; responsible use of eminent domain; how to arrive at value of land and buildings to compensate owners; compensation to property owners whose lands suffer a reduction in value; people forced to sell; who appraises the land's value; leasing payment should be renegotiated periodically.

Citizen education - the need and value of plant; the need versus hazards; interpretation of environmental impact statements.

Citizen input - community dissension; desire of people in a community for plant safety; for siting plan in that community; equity in public opinion (Do I, John Doe, have as much say as Vice-President of Northern States Power).

## WASTES/FUEL STORAGE

Waste disposal - whether on-site waste disposal is acceptable; coal piles; looks, space, etc; what are the real problems with waste:

Nuclear - nuclear waste disposal problems

Fly ash

What are alternatives?

Disposal of sulfur by-products

Use of wastes - use fly ash for fertilizer, concrete; political and technical restrictions to reprocessing nuclear wastes; use warm water for fish hatchery, near shore or in tanks.

Use wastes for fuel - build plant near landfill sites; use solid waste as fuel whenever possible.

Fuel storage - desire to know where it is stockpiled.

Use waste heat water for heating homes or irrigation of crops.

Utilization of sludge and ash.

## HEALTH AND RADIATION

Health - human; effects on local residents; health effects on those most prone to low-level radiation; effects on public health; health hazards to the workers; nuclear radiation effect on employees, cumulative and short term; genetic effects of low-level radiation; humans as storers of radioactive wastes; cumulative radiation causing cancer; health concerns from transportation; fears/anxiety -- social fears; emotional effect on people; anxiety of people produced by uncertainty of nuclear power plants; have too many people, therefore can't have nuclear plants.

Radiation - radioactive emissions from plant which are long-lasting low-level radiation damage; danger from natural radiation damage; danger from natural radiation; concentration in dairy products; agricultural concerns due to radiation nuclear fallout; effects on biological systems; comparison of radioactivity-- coal, nuclear, geothermal, solar; cumulative and acute on all human and plant life; value of term "pico curie" (i.e. very small amounts of radiation); distinguishing sources of radiation.

## CONSERVATION

Energy conservation - need to conserve energy produced from nonrenewable fuel resources; extent to which conserving energy will help; implementation of comprehensive energy conservation program; laws which forbid needless use should be enacted.

Changing production technology - use presently owned sites for experimentation with alternative energy-production methods; alternative energy sources; attempt to reduce peak energy demands; need economic incentives for alternatives; need to increase utilization of solar energy; potential for replacement of central station plants by solar, wind, or other alternatives; industries by conserving fossil fuel will increase their own electrical energy demands; emphasis on use of fuel cells; emphasis on recycling of glass and metal containers to conserve energy.

## PLANT LOCATION

Existing site condition (amount and type of pollution); proximity to communication links;

In relation to population - protect existing homes; recognition of future growth areas; in north near labor supply; production of electricity in area with associated effects, use of energy outside area;

In relation to power uses - in industrial areas, near load center; near users to avoid transmission lines; for cogeneration of electricity and steam;

In relation to physical features - stay out of floodplain; proximity to lakes and streams; near large body of water.

In relation to land uses - proximity to residential areas; land not suitable for agriculture, parks or residential.

Specific concerns: avoid airports, locate power plants underground; stacks in relation to air travel; physical location that can be protected; avoidance of areas of natural hazards; considerations given to availability of basic building material (sand, gravel, stone, etc.) in area; not many sites.

## SAFETY/SECURITY

Plant safety - vandalism; probability of catastrophe; explosions; melt-down; increased fire hazard; danger of nuclear malfunction; prime target in case of war; stringent specifications and safety standards should be used for nuclear plants; adequate safety precautions for coal plants; concern for potential dangers; safety questions regarding hydro power (dam failure, etc.); Occupational and Safety Administration (OSHA) doesn't cover nuclear questions.

Security - danger of sabotage; site easily protected; need federal protection force; police state/loss of civil liberties; police state measures necessary to control sabotage; concern over loss of freedom due to nuclear protection; legal changes to permit surveillance of radicals; security-fuel transport and waste transport.

Plans - are evacuation plans adequate in case of accident; closer liaison between civil defense and power plant.

## AIR/CLIMATE

Air $SO_2$ - cleanliness (soot); nitrous oxide emissions; smoke emitted from coal-fired plant; coal dust due to emptying coal cars; noxious odors; radiation; particulate pollution; concern with view becoming obstructed by dirty air; thermal pollution effects on air; building damage from air pollution; nuclear - no smoke and dust.

Climate - effects on climate -- cooling tower cloud fog; changes in ice cover patterns; endangering earth's ozone layer; increased acidity in rainfall; climatic concerns for siting -- weather concerns; inversion patterns; thermal air pollution and climate changes; electrical disturbances; prevailing winds away from populated areas; frequency of severe storms; global effect on weather; greenhouse effect of $H_2$ evaporation; $CO_2$ concentration in atmosphere.

## NATURAL ENVIRONMENT

Natural area preservation - least alteration of most virgin natural environment; avoid scientific areas; preserve scientific areas; concern for number of natural areas which remain for future generations.

Wildlife - effects of wastes and byproducts on wildlife; effect on endangered species; avoid wildlife habitat; concern with chimneys (stacks) in waterfowl migration routes; effects on wildlife and domestic animals; there is a minimal effect on animal life; wildlife leaving area because of unhealthy conditions; interference with wildlife and botanical habitat, especially if near creek or river mouth.

Fish - fish kills at water intake; change in fish quality -- positive or negative; impact on fish; entrainment and entrapment of fish; overabundance of marine life attracted to area.

Vegetation - better growth of vegetation; heat-island effect (associated with groups of plants).

Wetlands - avoid wetlands if at all possible; marshes and wetlands; effects on wetlands and other ecologically fragile areas.

Forests - depletion of forests and other renewable resources; effects on woodlots.

## SOCIAL/CULTURAL

General - effects on social fabrics of the community; impact on political structure of the community.

Population changes - increasing; growth in area; urbanization of rural areas; quality of people brought in influx of undesirables.

People relocation, displacement - loss of land that has been in one family a long time; displacement of business, residences; relocation of residents who do not wish to live near facility; psychological effect on people having land taken by power plant.

Lifestyle, values - any changes affecting human lifestyle; value changed (attitude) towards conservation; impact on crime rate; disruption of social order; arrogance of big business; impact on performing arts (available facilities, etc.); minimize throw-away mentality; effect on mores; moral justification of oil and gas use vs. nuclear; would a nuclear plant deter people from moving into an area; boom problems associated with construction; decrease in social programs because of stronger economic bases; changes in living standards; moral and social effect on people concerned with energy needs but not negative effects; effect on feelings towards the land values; what social controls are implied by the spartan life which may result if energy production is halted; impact on family unit.

## PHYSICAL SITE CHARACTERISTICS

Soils - suitable for construction; destruction of soil fertility by nuclear plants; erosion, construction runoff; damage from topsoil disturbance; contamination; locate on poor soil; soil conservation practices; radiation impacts on soil; productivity after the plant is decommissioned; increased sedimentation in lakes and streams caused by stripping of vegetation.

Geology - least disturbance to geology; geologic stability; geographic effects; suitable rock formation; nuclear plants causing creeks in rock formations; mineral value of land used for siting; preservation of unique geologic features (dunes, morraines); will there be a change in the geographic character of the land; efforts to maintain land contours; stability of shoreline bluff areas; need to know if plant would be more serviceable in a higher or lower elevation area.

Land requirements - need to know how much land is needed; height of plant, structures; land consumption of nuclear parks; regulations require excessive amounts of land for nuclear plants.

Physical features - physical condition of the land; drainage problems from increase in impermeable surface area; preserving the physical features that were instrumental in establishing the cultural heritage of the area.

## NEED FOR PLANT

General - need for plant; maintaining standard of living; need to fix priorities for energy needs which are necessary; which energy uses can we really do without if necessary; increased attention to electric plant as opposed to other energy distribution system because of the concentrated nature; if power plant fails, danger to public; potential for social disruption if adequate power not provided; differences between actual power needs and utility projections; justification of need on basis of third-party projections of consumer demand.

Local - present and future need for power in both rural and urban sectors; importance of community energy independence; role of electricity in community support services.

Factories and schools - need for adequate power to keep factories and schools open.

National - striving to achieve energy independence (the U.S. and Wisconsin); interdependence of communities and areas; recognize the inability to ship all the bad aspects of decisions elsewhere while keeping most of the benefits; natural vs. local needs; consider worldwide needs for many operations; national economic worth vs. worth of unaltered site; need vs. industrial, commercial, agricultural, educational effects; additional power need in 1980; recognize "greater than local" needs; second-class status for America; ultimate inevitability; increased regional tolerance of others; we should maintain a realistic capability to deal with nuclear questions even if we do not emphasize nuclear power generation for U.S. needs.

## TRANSMISSION LINES

General - means of transmission; need to know alternatives to transmission lines in long distance transport of large amounts of power; loss of energy in transmission.

Land requirements - need for transmission right-of-way; stacking of transmission lines; land affected by transmission lines; agricultural land should not be split up.

Location - use underground transmission lines; put transmission lines along highways (off agricultural land); so farmers can farm around them; avoid locating transmission lines near highways; pole placement to avoid problems with irrigation and tillage.

Scenic, aesthetic - plan corridors for the environment; visual impact of transmission lines; are power line poles more unsightly than other tall objects.

Corridor Use - as wildlife habitat; as firebreaks; planned recreation corridors.

Impacts - danger of microwave activity from HV transmission on cellular tissue and circulatory system: human/animal; ozone build-up and destruction of natural vegetation in transmission corridors; spraying of right-of-way; suitable routes; placing transmission lines in major bird flyways; keep routes open and accessible; will they follow existing corridors; effect on land values; health effects of electromagnetic radiation; soil erosion; farming; mining; forestry; better research on radio and TV interference.

Compensation - leasing payments should be renegotiated periodically; compensation to municipalities for transmission lines.

## ENVIRONMENTAL DEGRADATION (GENERAL)

General - balance of nature; interference with ecosystem; harmful vs. beneficial; pollution and environment balanced, not disturbing balance of nature; quality of life, will it improve or diminish; environmental effects of not building plants; life in general; least environmental degradation; pollution to land and water; concentration in food chain; highest and best use of land; impact on the food chain; synergistic effects of thermal, chemical, and radioactive pollution; preservation of natural areas by the plant.

Mining - damage from mining; strip-mining laws; need to restore the natural quality of the land where fuel is extracted; biological and physical effects of mining fuel; amount of land used in fuel procurement;

destruction of natural areas in the West resulting from coal mining; social problems (crime, delinquency, alcoholism, etc.) in boom towns near mining; mine tailings from uranium are unusable; reclaimed land is not as productive as before; effect of black lung and other hazards to coal miners.

## PLANT OPERATION

Operation - annual efficiency of a power plant; desire to know if utilities are power pooling; building-code compliance; use of scrubbers on coal plants; type of cooling methods; possibilities for load management at site; nuclear plant needs back-up unit; lead time required to begin operation; operation decisions unresponsive to local needs; increase energy efficiency; switching grid to other power facilities in event of power failure; plant should have resource conservation plan with soil and water conservation district.

Plant size - large plants versus small plants; avoid small plants; avoid large plants; massive plants equal fewer jobs and more welfare; smaller coal plants rather than larger for transportation needs.

Life of plant - entombment/decommissioning -- need to restore the natural character of the land where obsolete facilities are abandoned; costs of decommissioning; how are plants decommissioned; permanent encasement of nuclear power plant.

Buffer zone/multiple use - buffer zone between plant and residences; use trees for buffer; use of buffer zone for agriculture; land around plants should be for public use and benefit -- i.e. parks; all utility property should be used (timber or crops); plant trees instead of crop land; multiple use of area around plant; use for crops; use land as park or camping area.

## FUTURE GENERATIONS

Responsibility to future generations; moral issue of responsibility to next generations concerning nuclear wastes; land is sacred trust for future generations.

## SCENIC/HISTORICAL

Scenic - damage to scenic resources; loss of scenic areas; desire to know who decides what is a scenic area; preservation of scenic shorelines.

Historical - historical significance; preserve historical landmarks; important archeological sites; avoid cemeteries; destruction or conversion of ethnic, historical sites; avoid small burial grounds; make survey through local organization of local historical sites.

Minimize visual impact of plants and lines; visual impact of tall stacks and strobe lights; need to blend structures in with the surrounding areas; the assurance that the plant will be an attractive installation; aesthetic plant, including landscaping; architecture should complement area; scenic value of power facility; unsightly cooling towers; ugly power plants; appearances of cooling towers.

## TRANSPORTATION/TRAFFIC

General - increase in amount of land used for transportation (roads, etc.); increase rail and road; loss of roads; reevaluate roads; use of water transport; closing of roads, availability of roads, availability of water; damage to environment from increased transportation needs; disruptions from transportation; effects on local highway maintenance; costs of accesses and bypasses around power plant.

Traffic increases - site far from major highways to prevent adverse traffic; i.e.-- especially during construction.

Distances - for transportation; need for roads means more land taken; site near highways; routing of nuclear wastes; routing changes for buses and other traffic where fogging/icing occurs from cooling towers.

## RECREATION

Positive impacts - hydro creates lake and recreation areas; increased recreation (in cooling ponds, etc.); improved fishing from thermal pollution; hunting and fishing benefits around plants; tourism as result of plant; use of plant for education tours; research; warms Lake Michigan for swimming; plant is point of interest.

Potential negative - limiting access to lakes and streams; restriction of public uses; hunting/hiking, etc; possible decrease of recreation areas; reduction of recreational activities connected with water (boating, swimming, etc.)

Neutral - effect on recreational use of land and water impact on parks; effects on tourism; maintain Wisconsin's recreational appeal; effects on fishing and hunting; effect on existing and potential future recreation areas; regional recreation development versus economic needs for power development; preservation of park lands, desire to know if people at plant and changes in lifestyle would affect recreation.

## LAND-USE CHANGE

Costs vs. benefits of land-use changes; site elimination from other future land-use options; residential encroachment in remote areas; mix land-use types; relocation of present land use; loss of natural land due to deposition of ash and $SO_2$ scrubber sludge, use of land after power plant is gone; concern with large land holdings; return land not needed back to private owners; protection of land from future plant encroachment.

## NOISE

Noise; traffic and other noise; noise impact on residences; impact on wildlife; noise especially during construction.

## INSURANCE/LIABILITY

Is plant insurance adequate; adequacy of insurance for population; who pays for environmental damage; public accepts liability for nuclear plant accidents due to Price-Anderson Act; liability for land contamination; better understanding of insurance coverage; victim culpability; compensation for victims; ratepayers shouldn't have to absorb costs of liability insurance; effect on local insurance costs; insurance companies will not insure homeowners or businesses in vicinity (in case of major nuclear accident).

## RESEARCH NEEDS

Information - need for detailed, accurate environmental impact statements total monitoring of groundwater, streams, and air; dairy milk monitoring; need for baseline data and monitoring data; more factual data on biological effects; comparison of radiation: coal, nuclear, solar, geothermal; properly understood monitoring methods; better understanding of cancer-causing properties of plutonium; independent monitoring; can there be adaptive use of ecological change (e.g., use of thermal pools); need for comprehensive environmental studies in waste disposal; added cost due to overlapping research; early research for preservation of historic building sites; more adequate knowledge about the limits of human exposures allowable to toxic substances emitted from the plant; public information availability and support for public-interest research; accurate preconstruction monitoring; how to choose between air and water pollution.

Citizen needs - education and information on energy; methods for evaluating between emotional and factual studies; sharing of information nationwide between communities with similar power-plant-siting experiences; earlier citizen involvement in land-use issues, siting and licensing; educate lay people quickly; early research for preservation of historic building sites; keep people informed.

## OTHER

Increased state aid because of short-term increase in population; should buy the whole farm; lower electric costs for local residents; special discount - reduced electric bill to consumers near plant; local decision on eminent domain; plant should make use of local resources (people, gravel, etc.); relocation of residents who do not wish to live near facility; streamline awareness of protest to reduce costs; need more global thinking (air, etc. vs. worldwide); good agricultural effects of sulphur from coal burning; new plants are less efficient because they are large; fission unnatural in the universe; fly ash disposal areas should have same restrictions as the Department of Natural Resources presumably uses for solid-waste disposal areas; alternative cooling technologies so river, lake site not necessary; desire to know if local agencies can monitor the impacts of the power plant; spatial extent of pollution; time span of biological and physical effects; better electric rates for industries in area; concern for medical services; provision of radioisotopes for pharmaceutical, industry, hospitals; responsible news reporting; factual information reported by all media; local community aiding expediting building of plant; need to know how to best address the many tradeoffs connected with these concerns; need to know the real facts presented in the pro and con debates on future plants; need to know if there will be more power or less during construction in an area; question as to whether engineers know what they are talking about; encourage public relations between power company and area residents; inability to hold protest groups accountable for future power deficiencies.

## REGIONAL CONCERNS

Stevens Point - unique crops of area; adequate water supply from the Wisconsin River for use by the plant; impact on specific area industries: potato, cranberry, and dairy.

Sheboygan - regional maintenance of water quality -- cumulative effects on several sites; shoreline properties -- recreational and historic; values of maintaining and improving the integrity of the Great Lakes; preservation of unique geologic features (sand dunes, moraines); stability of shoreland bluff areas; changes in longshore currents; protection coastal areas; warm-water discharge inland (not into Lake Michigan); radiation contamination carried by Great Lakes; gondolas interfering with traffic put on Lake Superior, not Lake Michigan; warms Lake Michigan for swimming; aquatic life in Lake Michigan.

# APPENDIX B

## JANESVILLE WORKSHOP

GROUP PARTICIPANTS

### Group 1

Judith Adler
Ben Beebe
Morris Bradley
Elmira Cerny
Lee Fricke
Marilynn Jensen
Gus Klatt
Robb Martin
Bessie Poppas
Norm Rable
Carl Welty
Zealy Williams

Leader: Bob Friedman

### Group 2

Benita Byrd
Clinton Crowl
Mrs. Bernie Hilbert
W. O. Hoffman
Harmon Milner
Randel Oaklief
Helen Ostermiller
Richard Patten
Charles Staley
Lloyd Yelk

Leader: Elin Quigley

### Group 3

Leroy Bauer
John Gelshenen
Lloyd Goding
Kip Oschwald
Frank Ozier
Mrs. Denis Rupnow
Kay Schultz
Richard Stenstrom
Olive S. Thomson

Leader: Charles Andrews

### Group 4

Frank Dobbs
Ed Arn
Joan Hyer
Bill Linderud
Richelle Lisse
Joy Smage
Bob Spenle
Nancy Source
Fred Uphoff

Leader: Jill Randall

### Group 5

Donald Beardsley
Edwin Blaney
Betty Bullock
John Ernster
John Higdon
Nadine Stoner
Gary Murphy
Gerald Myhre

Leader: Bob Terrell

### Group 6

Nancy Douglas
Virginia Fellows
Edward Fuller
Don Goiffon
Allan Haukom
Janice Redford
Nancy Staff
Gertrude Sweet
Helmer Vasby

Leader: Jerry Shelton

### Group 7

Sanford Anderson
Berneva Hebb
Richard Konicek
David Larson
Jerry Mason
Lynn Stainbrook
June Swannack
David Thompson
Harvey Wedeward
Sandra Osborn
Charles Wileman

Leader: Anton TenWolde

GROUP I

## Biological and Physical

| Rank | Points | |
|---|---|---|
| 1 | 44 | Pollution and environment balanced |
| 2 | 35 | Enough water for public after power plant use |
| 3 | 33 | Type of land suitable for construction |
| 3 | 33 | Effect on ground water and wells |
| 5 | 32 | Enough water for power plant |
| 6 | 29 | Disposal of nuclear wastes |
| 7 | 28 | Rail and road transportation in the area |
| 8 | 27 | Effects of wastes on humans |
| 9 | 26 | Type and deposit method of effluent |
| 9 | 26 | Type of fuels used |
| 11 | 24 | Advance planning to rectify possible damage to the environment |
| 12 | 19 | Using ag. land |
| 12 | 19 | Storage of fuel wastes |
| 14 | 18 | Logically where heavy industrial use needed |
| 14 | 18 | Planned corridors for the environment |
| 16 | 16 | Continuous independent monitoring of health hazards |
| 17 | 15 | Enough water at all (dry) times to keep the balance of nature |
| 18 | 14 | Distance power is to be transported |
| 19 | 11 | Effects of wastes and by products on wildlife |
| 19 | 11 | Not disturbing the balance of nature |
| 19 | 11 | Could split up ag. land |
| 19 | 11 | Citizen input on plant safety |
| 23 | 9 | Air pollution |
| 23 | 9 | Placement of power lines over ag. land |
| 23 | 9 | Visual concern of plant |
| 26 | 8 | Environmental impact of housing and sewers for temporary construction workers |
| 27 | 7 | Additional traffic generation |
| 28 | 3 | Water temperature effect |
| 28 | 3 | Traffic and other noise |
| 28 | 3 | Sufficient security in transport of fuel wastes (nuclear) |
| 28 | 3 | Effect on recreational use of land and water |
| 28 | 3 | Environmental disturbances of transmission lines |
| 33 | 1 | Amount of land required |
| 34 | 0 | Disturbance of geological sites |
| 34 | 0 | Construction runoff |
| 34 | 0 | Erosion |
| 34 | 0 | Use of water transport |

## Economic and Social

| Rank | Points | |
|---|---|---|
| 1 | 39 | Electricity assures jobs |
| 2 | 38 | Higher standard of living due to electricity |
| 3 | 36 | Cost of municipal services |
| 4 | 32 | Assure enough power |
| 5 | 28 | Loss of ag. and residential land |
| 5 | 28 | Provide jobs via construction and operation |
| 5 | 28 | Taxes to various governmental units |
| 8 | 26 | Increased organization due to new power |
| 9 | 24 | Danger of nuclear disaster |
| 9 | 24 | Total lifetime cost in $ and energy for construction, operation and moth-balling |
| 11 | 22 | Are natural resources used to best advantage |
| 12 | 17 | Social problems of large increase in population |
| 13 | 15 | Cheaper power |
| 13 | 15 | Increase in population |
| 15 | 14 | Less likelihood of power failure because of local plants |
| 16 | 13 | Traffic-direct and indirect |
| 17 | 12 | Historic and archeological sites |
| 17 | 12 | Regional vs. local plants |
| 19 | 11 | Industrial conversion to electricity |
| 19 | 11 | Not upset local area during construction |
| 21 | 10 | Changes in property values |
| 21 | 10 | Cost of lost power due to length of transmission line |
| 21 | 10 | Economic hardship from power lines crossing land |
| 21 | 10 | New money in area |
| 25 | 9 | Increased public contest of local plant |
| 25 | 9 | More governmental services |
| 27 | 8 | Effects of plant failure on humans |
| 28 | 7 | Increase in local tax base |
| 28 | 7 | Locate where most people benefit |
| 30 | 6 | Can use be made of present transmission lines |
| 31 | 5 | Temporary impact of construction workers and families |
| 31 | 5 | Availability and quality of housing |
| 33 | 3 | Cost of correcting change in water purity |
| 34 | 2 | Cost of construction |
| 34 | 2 | Tourism and recreation |
| 36 | 1 | Impact of fuel consumption on community |
| 37 | 1 | Sufficient supply of labor in area |
| 38 | 0 | Sufficient schools |
| 38 | 0 | Concern for medical services |
| 38 | 0 | Lower tax base due to people not residing because of environment |
| 38 | 0 | Wage-level changes |
| 38 | 0 | Loss of recreational land |
| 38 | 0 | Economic impact of plant shut-down |
| 38 | 0 | Better fishing |
| 38 | 0 | Cost of duplicate construction |

## Land Use Concerns

| Rank | Points | |
|---|---|---|
| 1 | 63 | Preservation of prime ag. land |
| 2 | 54 | Make use of existing facilities-roads, transmission lines, etc. |
| 3 | 34 | Location of transmission lines as part of plant siting decision |
| 4 | 33 | Urban sprawl because of increase in available power |
| 4 | 33 | More use of marginal land for lines |
| 6 | 30 | No nuclear waste dumps due to climate |
| 7 | 25 | Dams-flood control-fishing, recreation |
| 8 | 24 | Poorer land for construction site |
| 9 | 23 | Site where necessary transportation available |

GROUP I

Land Use Concerns (continued)

| Rank | Points | |
|---|---|---|
| 10 | 19 | Promotes linear commercial and industrial development |
| 10 | 19 | Transmission lines are hardships to farmers |
| 12 | 18 | As little damage to the land as possible |
| 13 | 15 | Planned final use of land |
| 14 | 14 | Preserve scenic areas |
| 15 | 13 | Preserve use of lakes and waterways for recreation |
| 16 | 12 | Transmission lines lower the value of ag. land |
| 17 | 11 | Impact on local businesses |
| 18 | 10 | Effort to maintain land contour |

| Rank | Points | |
|---|---|---|
| 19 | 9 | Make use of existing corridors |
| 20 | 8 | Destroying archeological sites |
| 20 | 8 | Planned recreational corridors along transmission lines |
| 20 | 8 | Whole farm buying |
| 23 | 3 | Good landscaping |
| 24 | 3 | Create aviation hazards |
| 25 | 2 | Should not fragment woodlands to corridors |
| 25 | 2 | Preserve marshlands |
| 25 | 2 | Visual pollution detracts from scenic value |
| 28 | 0 | Local radio and TV disturbance |

Final Voting

| Rank | Points | |
|---|---|---|
| 1 | 71 | Preservation of prime ag. land |
| 2 | 36 | Pollution and environment balanced |
| 2 | 36 | Make use of existing facilities-roads, transmission lines, etc. |
| 4 | 33 | Location of transmission lines as part of plant siting decision |
| 5 | 29 | Assure enough power |
| 6 | 27 | Cost of municipal services |
| 7 | 25 | Enough water for the public after power plant use |
| 8 | 24 | Danger of nuclear disaster |
| 8 | 24 | Enough water for the power plant |
| 10 | 17 | Type of land suitable for construction |
| 11 | 14 | Type of fuels used |
| 12 | 13 | Higher standard of living due to electricity |
| 12 | 13 | Taxes to various governmental units |
| 12 | 13 | Total lifetime cost in $ and energy for construction, operating, moth balling |

| Rank | Points | |
|---|---|---|
| 12 | 13 | Effects of wastes on humans |
| 16 | 11 | No nuclear waste dumps due to climate |
| 17 | 10 | Increased urbanization due to new power |
| 17 | 10 | Electricity assures jobs |
| 19 | 9 | Disposal of nuclear wastes |
| 19 | 9 | Transmission line hardships to farmers |
| 19 | 9 | Promotes linear commercial and industrial development |
| 22 | 8 | Rail and road transportation in the area |
| 23 | 7 | Urban sprawl because of increase in available power |
| 24 | 6 | Type and deposit method of effluent |
| 25 | 5 | Effect on ground water and |
| 26 | 4 | Provide jobs via construction and operation |
| 26 | 4 | Poorer land for construction site |
| 28 | 3 | Site where necessary transportation is available |
| 29 | 2 | Loss of agricultural and residential land |
| 29 | 2 | Maximum use of marginal land for transmission lines |
| 31 | 0 | Dams-flood control, fishing, recreation |

GROUP 2

Biological and Physical

| Rank | Points | |
|---|---|---|
| 1 | 87 | Availability of water |
| 2 | 44 | Waste disposal |
| 2 | 44 | Coal-plant emissions in air ($SO_2$, fly ash, etc.) |
| 4 | 40 | Particulate and chemical discharges in water |
| 5 | 34 | Water contamination (surface and underground) |
| 6 | 27 | Effect on agriculture |
| 6 | 27 | Effects on various vegetation and wildlife |
| 8 | 26 | Effect on downstream use |
| 8 | 26 | Impact on aquatic life |
| 8 | 26 | Limiting other water uses |
| 11 | 20 | Plant size having biological effects |
| 12 | 17 | Effects of material storage (coal...) |
| 13 | 16 | Effect of weather on water availability (too much or drought) |
| 14 | 14 | Heat discharges |
| 14 | 14 | Structural strength of water contaminants |

| Rank | Points | |
|---|---|---|
| | | Structures (cooling lakes) |
| 14 | 14 | Floodplain encroachment |
| 14 | 14 | Fuel availability |
| 13 | 18 | Soil suitability |
| 13 | 18 | Quality of life impacts |
| 20 | 12 | Effect of cooling tower condensation |
| 21 | 11 | Changing drainage courses |
| 22 | 9 | Maintaining unique natural areas |
| 23 | 8 | Erosion of construction |
| 24 | 7 | Transportation to the site |
| 24 | 7 | Limiting recreational use |
| 24 | 7 | Water table levels |
| 27 | 3 | Noise levels |
| 28 | 0 | Adding impacts to industrial areas, rock formation suitability |
| 28 | 0 | Visibility impacts |
| 28 | 0 | Effects of water inversion |
| 28 | 0 | Proximity to airports |

Economic and Social

| Rank | Points | |
|---|---|---|
| 1 | 45 | Fuel transportation costs vs. transmission loss |

| Rank | Points | |
|---|---|---|
| 2 | 44 | Conservation rather than creating, increasing demand |

GROUP 2

### Economic and Social

| Rank | Points | |
|---|---|---|
| 3 | 37 | Real estate taxes (benefits and losses) |
| 3 | 37 | Effect on population growth, housing, services, etc. |
| 5 | 34 | Safety and security |
| 6 | 29 | Loss of ag. land for industry (?) |
| 7 | 26 | Impact on orderly growth patterns |
| 8 | 25 | Municipal costs (security, police, fire) |
| 9 | 24 | Effects of plant size |
| 10 | 23 | Effects on schools |
| 10 | 23 | More plants increase energy availability |
| 12 | 22 | Ad valorem tax |
| 13 | 20 | Transmission line compensation for landowners |
| 13 | 20 | Impact on existing businesses, agriculture (benefits and losses) |
| 15 | 19 | Need to involve citizens in site selection |
| 15 | 19 | Proximity of plants to users |
| 17 | 17 | Legal changes to permit surveillance of radicals |
| 18 | 16 | Education (especially on nuclear questions) |
| 19 | 15 | Effect on property values |
| 19 | 15 | Advance state, county, and municipal planning |
| 21 | 14 | Siting for dual usage |
| 22 | 13 | Quality of life |
| 23 | 11 | Effect on wages |
| 25 | 10 | Increased regional tolerance of others |
| 25 | 10 | Power plants include recreational use |
| 27 | 9 | Compensation to municipality for transmission lines |
| 28 | 7 | Disruption of community from construction |
| 29 | 6 | More employment |
| 30 | 5 | Opportunity cost-cost of not building plant, delay costs, etc. |
| 31 | 1 | Archeological sites/historic areas |
| 32 | 0 | Housing availability |

### Land Use Concerns

| Rank | Points | |
|---|---|---|
| 1 | 51 | Conserve prime ag. land |
| 2 | 48 | Maximum use of existing transportation corridors |
| 3 | 42 | Proximity to necessary resources (fuel, manpower, water...to use little land) |
| 3 | 42 | Coordination with local and/or regional land use plans |
| 5 | 37 | Siting for dual energy use |
| 6 | 32 | Maintain Wisconsin's recreational appeal |
| 7 | 29 | Site suitability in relation to other uses |
| 8 | 27 | Preservation of irretrievable (unique) natural resources...wetlands, forests |
| 9 | 22 | Available railroad tracks (for coal) |
| 9 | 22 | Geographic location |
| 9 | 22 | Transmission line effects |
| 11 | 21 | Associate power plant with waste disposal |
| 13 | 17 | Improvement of water quality |
| 14 | 17 | Without local opposition |
| 15 | 17 | Strict control of area development |
| 16 | 15 | Use industrial land (if possible) |
| 17 | 13 | Type of plant in relation to population centers |
| 18 | 12 | Maintain Wisconsin's recreational appeal |
| 19 | 12 | Preservation of wildlife nesting grounds |
| 20 | 11 | Ag. land becomes industrial, and lost to other uses |
| 21 | 10 | Plant sites away from water shorelines |
| 22 | 9 | Site suitability for lands in public domain |
| 23 | 8 | Preservation of pasture lands |
| 24 | 7 | Availability of highways |
| 24 | 7 | Power plant graveyards for other sites |
| 26 | 4 | Need for reasoning in regard to residential requirements |
| 27 | 0 | Appearances of cooling towers |
| 27 | 0 | Preservation archeological/historic sites |
| 27 | 0 | Scenic enhancement |

### Final Voting

| Rank | Points | |
|---|---|---|
| 1 | 59 | Conservation |
| 2 | 51 | Availability |
| 3 | 31 | Conserve prime ag. land |
| 4 | 29 | Particulate and chemical discharges |
| 4 | 29 | Siting for dual usage |
| 6 | 24 | Fuel transportation costs vs. transmission loss |
| 6 | 24 | Advance state, county and municipal planning |
| 8 | 22 | Coal plant air emissions |
| 8 | 22 | Maximum use of transmission corridors |
| 10 | 20 | Safety security |
| 11 | 19 | Effect on population growth |
| 12 | 18 | Loss of ag. land for industry |
| 13 | 17 | Effect on downstream uses |
| 14 | 15 | Waste disposal |
| 14 | 15 | Siting for dual purposes |
| 16 | 14 | Effects of plant size |
| 17 | 13 | Effects on agriculture |
| 17 | 13 | Impact on orderly growth patterns |
| 19 | 12 | Water contamination |
| 20 | 11 | Preservation of unique areas |
| 21 | 9 | Coordination with local and regional land use plans |
| 21 | 9 | Municipal costs |
| 23 | 8 | Transmission line effects |
| 23 | 8 | Limiting other uses |
| 25 | 7 | Effects on native vegetation and wildlife |
| 25 | 7 | Use of transmission corridors for recreation |
| 25 | 7 | Site suitability in relation to other uses |
| 28 | 6 | Impact on aquatic life |
| 29 | 5 | Available railroad tracks |
| 30 | 1 | Proximity to necessary resources |
| 31 | 0 | Geographic location |

GROUP 3

### Biological and Physical

| Rank | Points | |
|---|---|---|
| 1 | 52 | air discharged from power plants--particulates |
| 2 | 45 | effects on surface hydrology (water)--change in water flow |
| 3 | 41 | sulfur dioxide emissions |
| 4 | 32 | adequate means of disposal of spent fuels |
| 5 | 31 | lowering of water-table level |
| 6 | 28 | discharge of pollutants including heavy metals into surface waters |
| 7 | 21 | proximity to geologic hazards - faults, unstable soils, etc. |
| 7 | 21 | impact of transmission lines |
| 9 | 19 | effects of nitrogen oxide discharges |
| 9 | 19 | rise in temperature of surface water source |
| 9 | 19 | control of impacts on plants and animals |
| 12 | 18 | visible impact |
| 12 | 18 | changes in plant life in surface waters |
| 14 | 17 | effects of air pollution on dairy herds |
| 14 | 17 | decrease in oxygen in lake or river |
| 14 | 17 | health concern from possible accidents in transportation or use of radioactive fuels |
| 17 | 14 | destruction of rare plant or animal life |
| 18 | 12 | increase in humidity in surrounding area |
| 19 | 9 | loss of recreational use of lake |
| 19 | 9 | leakage of radioactive waters |
| 20 | 8 | effects of water withdrawals by deep wells |
| 21 | 6 | effect of inversions |
| 21 | 6 | increase in acidity of rainfall |
| 21 | 6 | storage of wastes on site |
| 24 | 5 | noise |
| 25 | 2 | power plant design |
| 26 | 1 | prevailing wind direction |
| 26 | 1 | proximity to end use |
| 27 | 0 | concern about design of power plant site lighting |
| 27 | 0 | orographic effects |
| 27 | 0 | proximity to fuel source |

### Social and Economic

| Rank | Points | |
|---|---|---|
| 1 | 44 | proximity of demand to proposed site |
| 2 | 40 | "boom" problems associated with construction |
| 3 | 35 | environmental degradation |
| 4 | 29 | cost of energy to the consumer (cost of production at the site) |
| 5 | 24 | tax advantages |
| 6 | 22 | potential of use of waste products |
| 7 | 20 | industrial development |
| 8 | 19 | increased tax burden caused by an increase in services provided |
| 9 | 16 | problems of possible sabotage |
| 10 | 15 | local employment as a result of power plant |
| 11 | 14 | effects on adjacent land values |
| 11 | 14 | increased economic growth in the community |
| 11 | 14 | inconveniences to people being moved and relocated |
| 14 | 13 | quality of life changes caused by an increase in services provided |
| 15 | 12 | visual changes |
| 16 | 11 | use of railroads - positive and negative |
| 17 | 10 | impact on schools |
| 18 | 9 | increase in local wage scale |
| 19 | 8 | rapid population growth |
| 19 | 8 | increased local consumption caused by a power plant |
| 19 | 8 | increased demand for housing |
| 19 | 8 | adequate compensation for those who are displaced |
| 23 | 7 | cost as caused by proximity of demand and fuel sources |
| 23 | 7 | increased state aids |
| 25 | 5 | modification of adjacent land uses |
| 25 | 5 | availability of local medical facilities |
| 27 | 4 | effect of power plant on the local availability of fuel |
| 27 | 4 | highways-availability |
| 28 | 2 | size of plant - potential for electricity generation |
| 29 | 2 | increased demand for sewage treatment |
| 31 | 1 | loss of farmers spending on the community |
| 31 | 1 | health costs |
| 32 | 0 | ability of plant to convert to other fuels |
| 32 | 0 | effect on recreation |
| 32 | 0 | traffic safety for workers and tourists |
| 32 | 0 | decrease in tourism |

### Land Use

| Rank | Points | |
|---|---|---|
| 1 | 37 | loss of prime agricultural land |
| 2 | 17 | minimize number of acres used |
| 2 | 17 | avoid floodplain and fault hazards |
| 4 | 16 | urbanization of land due to availability of power |
| 5 | 14 | stacking of transmission lines |
| 6 | 12 | preservation of natural scientific areas |
| 7 | 10 | does not conflict with higher economic use of the land |
| 8 | 8 | design of the power plant so that it fits into the surroundings |
| 9 | 6 | loss of scenic value |
| 10 | 5 | loss of recreational land |
| 10 | 5 | will railroad increase economic growth |
| 10 | 5 | loss of historical areas |
| 13 | 4 | use of farm land for mobile homes and camping |
| 13 | 4 | vast burial sites |
| 15 | 3 | concern with improvement of land around site for recreation |
| 15 | 3 | proper landscaping around the plant |
| 17 | 0 | does not cut up existing parcels unwisely |
| 18 | 0 | concern with chimneys in waterfowl migration routes |
| 18 | 0 | loss of land that has been in the family for a long time |

### Final Voting

| Rank | Points | |
|---|---|---|
| 1 | 45 | loss of prime ag. land |
| 2 | 38 | particulate discharges |
| 3 | 37 | effects on surface hydrology |
| 4 | 37 | proximity of demand to proposed site |
| 5 | 30 | preservation of natural scientific areas |
| 6 | 28 | proximity to geologic hazards |
| 7 | 27 | environmental degradation |
| 8 | 19 | stacking of transmission lines |

## GROUP 3

### Final Voting

| Rank | Points | |
|---|---|---|
| 8 | 19 | rise in surface water temperature |
| 10 | 16 | lowering of groundwater table |
| 10 | 16 | industrial development |
| 12 | 14 | adequate means of disposal of spent fuels |
| 12 | 14 | cost of production at the site |
| 14 | 13 | sulfur dioxide emissions |
| 14 | 13 | discharge of pollutants into surface waters |
| 16 | 11 | increased tax burden caused by an increased demand for services |

| Rank | Points | |
|---|---|---|
| 17 | 10 | does not conflict with higher economic use of the land |
| 18 | 9 | tax advantages |
| 19 | 8 | boom problems associated with construction |
| 19 | 8 | potential for use of waste products |
| 19 | 8 | minimize number of acres used |
| 22 | 7 | urbanization of land due to availability of power |
| 23 | 5 | avoid floodplain and fault hazards |
| 23 | 5 | nitrogen oxide discharges |
| 25 | 2 | increased local employment as a result of power plant |

## GROUP 4

### Biological and Physical

| Rank | Points | |
|---|---|---|
| 1 | 78 | safety |
| 2 | 49 | immediate dispersal of pollutants in the air |
| 3 | 44 | condition of existing ecosystem |
| 4 | 43 | water quality |
| 5 | 36 | ultimate disposal of nuclear waste materials |
| 6 | 28 | radioactive pollution |
| 7 | 27 | effect of emissions on plant and animal life |
| 8 | 25 | availability of water for operation |
| 8 | 25 | genetic effects |
| 10 | 20 | possible human disease |
| 11 | 17 | impact of input materials (pre-conversion) |
| 12 | 14 | location of transmission towers on environment (flyways) |
| 13 | 12 | additional traffic effects |

| Rank | Points | |
|---|---|---|
| 13 | 12 | effects on local weather |
| 15 | 10 | vegetation and animal life on the site |
| 15 | 10 | visual effects |
| 15 | 10 | precluding other uses of water |
| 15 | 10 | contamination of food crops |
| 19 | 9 | transportation of nuclear waste (leakage) |
| 20 | 8 | thermal water pollution |
| 21 | 6 | effect on surface drainage |
| 22 | 5 | on-site storage of waste materials |
| 23 | 4 | impact on ground water supply |
| 24 | 1 | surface thermal pollution (land) |
| 25 | 0 | odors and smells and sounds |
| 25 | 0 | thermal air pollution |
| 25 | 0 | health effects of transmission lines |

### Economic and Social

| Rank | Points | |
|---|---|---|
| 1 | 78 | net energy potential (system efficiency) |
| 2 | 39 | local area's need for power |
| 2 | 39 | developmental costs of site |
| 2 | 39 | area to be supplied by plant (local or further away) |
| 5 | 36 | consideration of future alternative energy sources |
| 6 | 28 | statewide energy needs |
| 7 | 26 | pressure on community services |
| 7 | 26 | operational costs |
| 9 | 22 | public acceptance and support |
| 10 | 20 | economics of scale |
| 11 | 17 | availability and convenience of operations supplies |
| 12 | 16 | increased consumer costs due to bureaucratic delays |
| 13 | 14 | effects on the local tax base |
| 14 | 13 | who gets control and profits from the plant |
| 15 | 13 | future impact on consumers' bills |
| 16 | 12 | effects on health |

| Rank | Points | |
|---|---|---|
| 17 | 11 | effects on food productivity |
| 18 | 9 | effects on social fabric of the community |
| 19 | 8 | effects on economic base of community (net income to local community from plant) |
| 19 | 8 | population flow and fluctuation |
| 21 | 6 | effects on tourism |
| 22 | 5 | increased traffic (nuisance value) |
| 22 | 4 | existing transportation facilities |
| 23 | 1 | usurpation of agricultural land |
| 24 | 0 | impact on land prices in the area |
| 24 | 0 | attention to the desirability of local industrial and economic growth |
| 24 | 0 | psychological effects (relocation) |
| 24 | 0 | impact on political structure of community |
| 24 | 0 | potential for waste heat use |
| 24 | 0 | potential for co-generation facilities |

### Land Use

| Rank | Points | |
|---|---|---|
| 1 | 44 | who makes the siting decision |
| 2 | 35 | balancing land use in an area |
| 3 | 32 | routes of transmission lines (existing routes & development should be considered) |
| 4 | 30 | preservation of prime agricultural land |

| Rank | Points | |
|---|---|---|
| 4 | 30 | aesthetic fit of plant to the site (design) |
| 6 | 28 | location of necessary transportation facilities |
| 7 | 26 | prevailing winds in relation to housing patterns |
| 8 | 25 | use of water precluding other uses |

GROUP 4

Land Use

| Rank | Points | |
|---|---|---|
| 8 | 24 | location of plant in heavily industrial area |
| 10 | 21 | soil and other site limitations |
| 10 | 21 | preserving wilderness or natural areas (wetlands, prairies, forests) |
| 10 | 21 | adequate water supply for cooling |
| 13 | 20 | who appraises the site value |
| 14 | 16 | effects on streams and lakes |
| 15 | 15 | preserving residential areas |
| 16 | 12 | preservation of scenic areas |
| 17 | 11 | unique species or geological features on the site |
| 18 | 11 | location away from airport glidepaths |
| 19 | 7 | preservation of historically significant sites |
| 20 | 5 | public access to and potential usage of surrounding area |
| 21 | 3 | preservation of recreation areas |
| 22 | 1 | preserving shorelines |
| 22 | 1 | effects on feelings toward the land and land values |
| 24 | 0 | preserving flyways |
| 24 | 0 | preserving hunting and fishing |
| 24 | 0 | area required for all aspects of plants |

Final Voting

| Rank | Points | |
|---|---|---|
| 1 | 41 | safety |
| 1 | 41 | who makes siting decisions |
| 3 | 35 | net energy potential |
| 4 | 32 | disposal of nuclear wastes |
| 5 | 26 | routes of transmission lines (stacking) |
| 6 | 23 | local areas' need for power |
| 7 | 21 | consideration of future energy sources |
| 8 | 20 | immediate dispersal of pollutants |
| 9 | 18 | genetic effects |
| 9 | 18 | area to be supplied with energy |
| 11 | 16 | availability of water for operation |
| 12 | 15 | radioactive pollution |
| 12 | 15 | developmental costs of site |
| 12 | 15 | preservation of prime ag. land |
| 15 | 14 | soil and other site limitations |
| 16 | 13 | availability and convenience of operating supplies |
| 17 | 10 | statewide energy needs |
| 17 | 10 | balancing land use in an area |
| 17 | 10 | location of necessary transportation facilities |
| 20 | 9 | preserving natural areas |
| 21 | 8 | use of water precluding other uses |
| 22 | 6 | prevailing winds in relation to housing patterns |
| 23 | 5 | location of plant in heavily industrial area |
| 24 | 4 | operational costs |
| 24 | 4 | adequate water for cooling |
| 26 | 3 | condition of existing environment |
| 27 | 2 | water quality |
| 28 | 1 | aesthetic fit |
| 29 | 0 | effects of emissions on plant and animal life |
| 29 | 0 | possibility of human disease |
| 29 | 0 | pressure on community services |
| 29 | 0 | public acceptance and support |

GROUP 5

Biological and Physical

| Rank | Points | |
|---|---|---|
| 1 | 51 | ample supply of water for proper plant functioning |
| 2 | 49 | control of air pollution |
| 3 | 30 | geologic qualities of the proposed site |
| 4 | 27 | contamination of underground wells used for water supply |
| 5 | 26 | contamination of subsurface water by toxic wastes |
| 6 | 23 | least alteration of most virgin natural environments |
| 7 | 22 | avoid discharges of toxic materials into heated water effluent |
| 8 | 17 | temperature effects on surface water |
| 8 | 17 | effects on the aquatic ecosystem caused by low flows due to power plant use of surface waters |
| 10 | 16 | minimize effects on established wildlife areas |
| 11 | 15 | pollution levels should not rise above levels present in an area |
| 12 | 14 | toxic materials carried by evaporation water from nuclear power plants to vegetation and animals |
| 12 | 14 | availability of quantity of water necessary for nuclear power plants |
| 14 | 10 | effects of transmission lines in wetland areas on waterfowl |
| 15 | 9 | avoid wild animal habitats |
| 15 | 9 | minimize the impact of natural disasters (earthquakes, tornadoes, etc.) on power plants |
| 17 | 8 | leaching from on-site coal piles |
| 18 | 7 | evaporation from river leading to problems with sewage treatment downstream |
| 18 | 7 | avoid interaction of on-site nuclear wastes with surrounding environment |
| 20 | 6 | high voltage transmission lines should not endanger safety of people, animals or vegetation |
| 21 | 5 | atmospheric effects of cooling towers |
| 21 | 5 | surface water contamination from ash or SO2 scrubber sludge disposal areas |
| 23 | 4 | particulate emissions from coal plants |
| 23 | 4 | consideration for the habitat of rare and endangered species |
| 25 | 1 | nuclear plant would not be able to utilize trash and garbage as fuel |
| 26 | 0 | plant should not be visibly ugly |
| 26 | 0 | groundwater levels being reduced during construction |

GROUP 5

Economic and Social

| Rank | Points | |
|---|---|---|
| 1 | 27 | future energy shortages |
| 2 | 24 | conservation measures should be taken to reduce energy demand |
| 3 | 24 | cost incurred by delay in construction of any generating facility |
| 4 | 20 | waste disposal problems connected with nuclear power |
| 6 | 19 | more equitability in electric rate structure-real costs should be used |
| 7 | 18 | architectural standards allowing current comfort levels with less energy use |
| 8 | 16 | availability fossil fuels |
| 9 | 15 | proximity to existing transmission lines |
| 9 | 15 | appropriate and realistic estimates of future needs should be made |
| 11 | 14 | availability of land, water, transportation |
| 12 | 13 | utilize current waste products as fuel |
| 13 | 12 | proximity to need area |
| 13 | 12 | lifestyles altered to demand less energy |
| 15 | 11 | energy users should become technologically more efficient |
| 15 | 11 | maximize efficiency of power plant by utilizing waste heat |
| 17 | 10 | type of fuel |
| 17 | 10 | energy needs for food production |
| 17 | 10 | alter tax laws to encourage conservation |
| 20 | 9 | transportation costs associated with transportation of large volumes of coal |
| 20 | 9 | cost of construction should be a true reflection of actual costs nationwide |
| 20 | 9 | employment by the power plants |
| 23 | 8 | costs and benefits of electrical energy production should be born equitably by both user and producer areas |
| 24 | 7 | safety problems associated with transport of nuclear wastes through communities |
| 25 | 6 | increased unemployment |
| 26 | 5 | economic and environmental problems associated with coal transportation |
| 26 | 5 | emphasize recycling of glass and metal containers to conserve energy |
| 28 | 4 | taxes paid by power plants |
| 29 | 3 | we should maintain a realistic capability to deal with nuclear questions even if we do not emphasize nuclear power generation for U.S. needs |
| 29 | 3 | the ultimate inevitability of the use of fast breeder reactors once the option of building nuclear plants is selected |
| 29 | 3 | less restrictions on future energy production |
| 32 | 1 | site should not utilize more prime farmland than is necessary |
| 33 | 0 | limited uranium supplies, subsequent rise in cost of uranium |
| 33 | 0 | cost of construction |
| 33 | 0 | danger radioactive wastes pose to future generations |
| 33 | 0 | divisive nature of arguments over energy need, supply and use |
| 33 | 0 | proximity of site to large residential areas |
| 33 | 0 | impact on local taxes caused by increased need for services resulting from power plant construction |
| 33 | 0 | human error and possible consequences in relation to nuclear power plants |
| 33 | 0 | cooling towers vs. once-through cooling |
| 33 | 0 | water use by power plants |
| 33 | 0 | proximity of power plants to industrial concentrations |
| 33 | 0 | minimum new road or rail construction to supply fuel to power plants |
| 33 | 0 | monopoly potential of present energy supply companies |
| 33 | 0 | existing air quality |
| 33 | 0 | laws which forbid needless use should be enacted |
| 33 | 0 | security-relating to sabotage, terrorism, etc. |
| 33 | 0 | attempt to reduce peak energy demands |

LAND USE

| Rank | Points | |
|---|---|---|
| 1 | 51 | preserve prime ag. lands |
| 2 | 42 | put plant in areas where there will be least amount of deterioration resulting |
| 3 | 30 | consideration of supporting transportation systems |
| 4 | 27 | carrying capacity of areas for generating industrial facilities |
| 5 | 25 | realization that facility and lines must go someplace |
| 6 | 24 | power lines parallel to railroads and roadways |
| 6 | 24 | powerplants near good supply of water |
| 8 | 22 | concern for spin-off or secondary impacts |
| 9 | 17 | adequate geological structure |
| 9 | 17 | avoid wilderness areas |
| 11 | 16 | amount of land available for future expansion |
| 12 | 15 | follow property lines with transmission lines when possible |
| 13 | 10 | scars on landscape due to surface mining of coal |
| 13 | 10 | most industrially developed areas should be used for power plants |
| 15 | 8 | no historic or pre-historic area used |
| 16 | 7 | underground transmission economically not feasible |
| 17 | 6 | drainage and type of soil |
| 18 | 5 | avoid virgin areas |
| 18 | 5 | electrical interference from transmission lines in residential areas |
| 20 | 4 | siting away from floodplain areas |
| 20 | 4 | leasing of national forests for uranium mining |
| 22 | 2 | no use of agricultural land |
| 23 | 1 | land area needed for cooling ponds |
| 24 | 0 | need for adequate water for both farming and coal processing |
| 24 | 0 | consideration of wind patterns in location of power plants |

GROUP 5

Final Voting

| Rank | Points | |
|---|---|---|
| 1 | 34 | Conservation measures to reduce demand |
| 1 | 34 | Preserve prime ag. land |
| 3 | 28 | Future energy shortages |
| 4 | 27 | Ample supply of water for proper plant functioning |
| 5 | 23 | Plants in areas where there will be least deterioration |
| 6 | 20 | Need for energy |
| 7 | 19 | Equality in electric rate structures - reflect real costs |
| 8 | 18 | Least allocation of virgin natural areas |
| 9 | 17 | Realization that facilities and lines must go somewhere |
| 10 | 15 | Contamination of underground wells |
| 11 | 14 | Need for realistic estimates of future energy needs |
| 12 | 13 | Carrying capacity of the area for generating and industrial |
| 13 | 11 | Control of air pollution |
| 14 | 10 | Effects of low flow on aquatic ecosystems |
| 15 | 9 | Availability of land, water, transportation |
| 16 | 8 | Geologic qualities |
| 16 | 8 | Cost incurred by delay in facility construction |
| 16 | 8 | Consideration of supporting transportation systems |
| 16 | 8 | Employment by power plants |
| 16 | 8 | Alter tax laws to encourage conservation |
| 21 | 7 | Architectural standards to preserve present comfort |
| 21 | 7 | Avoid wilderness areas |
| 21 | 7 | Taxes paid by power plants |
| 24 | 6 | Contamination of subsurface water by toxic substances |
| 24 | 6 | Power lines parallel to railroads and railways |
| 26 | 4 | Minimum effects on established wildlife areas |
| 27 | 3 | Concern for spinoff or secondary impacts |
| 28 | 0 | Avoid toxic discharges into heated effluent |
| 28 | 0 | Temperature effect on surface water |
| 28 | 0 | Availability of fossil fuels |
| 28 | 0 | Proximity to existing transmission lines |
| 28 | 0 | Adequate geological structures |
| 28 | 0 | Plants near good supply of water |

GROUP 6

Biological and Physical

| Rank | Points | |
|---|---|---|
| 1 | 50 | Air pollution affecting health ($SO_2$, $NO_x$, etc.) |
| 2 | 37 | Quality of water affected by chemical and thermal pollution |
| 3 | 33 | Effect on surface water availability in vicinity of site |
| 4 | 32 | What kind of energy source will be used; if nuclear, radioactivity |
| 5 | 25 | Effect of transmission lines on farmland |
| 5 | 25 | Fuel supply problems |
| 7 | 23 | Power plant location so as to minimize distribution facilities (physical and economic) |
| 7 | 23 | Could the power plant utilize garbage and other waste as fuel |
| 9 | 22 | Disturbance to unique or natural areas by power plant or transmission lines |
| 10 | 21 | Effect of pollution on farming and farm crops in the area |
| 11 | 20 | Disposal (or utilization) of sludge and ash |
| 12 | 17 | Population density |
| 12 | 17 | Proximity of power plant, transmission lines, roads, etc. to each other |
| 13 | 14 | Avoid archeological sites and historic buildings or districts |
| 14 | 13 | Proximity of power plant to industrial areas |
| 15 | 11 | Will thermal pollution affect the ecosystem in the water supply |
| 15 | 11 | Suitability of the topography |
| 17 | 10 | Effects on land vegetation in the area |
| 18 | 9 | Is soil type suitable for foundation and and drainage |
| 19 | 8 | Visual impact of the power plant |
| 20 | 7 | Effect of increased humidity on the weather (fog, sleet) |
| 21 | 6 | Could full use be made of wind energy |
| 22 | 5 | Effect on the flood plain |
| 22 | 5 | Can transmission lines by put underground |
| 24 | 4 | Proximity of residential areas to the power plant |
| 25 | 1 | Can there be adaptive use of ecological change (e.g., use of thermal pools) |
| 26 | 0 | Effect on animal populations |
| 26 | 0 | Would a plant be more serviceable in a higher or lower elevation area |

Economic and Social

| Rank | Points | |
|---|---|---|
| 1 | 43 | Location so as to minimize cost and problems of electrical distribution |
| 2 | 37 | Availability of fuel supply: domestic vs. foreign and plenty vs. scarce |
| 3 | 36 | More efficient licensing and approval procedures |
| 4 | 33 | Electric service reliability and cost |
| 5 | 31 | Providing for efficient public input |
| 6 | 28 | Is more electricity really needed in the area |
| 7 | 23 | Replacement of obsolete and wasteful plants with new, more efficient plants |
| 9 | 20 | Job creation |
| 10 | 18 | Small plants vs. large plants to eliminate transmission lines |
| 10 | 18 | Choice of fossil fuel substitution - from coal to sun to fusion |
| 11 | 17 | Cheap power within limits of safety |
| 12 | 15 | Could the power plant be a site for disposal of waste |
| 13 | 14 | Does the site maximize the possibility of utilizing waste heat |
| 14 | 13 | Effect on the labor market before and after construction |
| 15 | 11 | Provide electrical energy as a factor in national security |
| 15 | 11 | Achieve balance between environmental concerns and needs of people |
| 15 | 11 | Most efficient allocation of capital |

GROUP 6

Economic and Social (continued)

| Rank | Points | |
|---|---|---|
| 18 | 10 | The effect of transporting fuels on our transportation system and our communities |
| 18 | 10 | Economic and social costs of waste disposal |
| 20 | 9 | Anticipation of growth in an area, population and industry |
| 21 | 6 | Site plants out of residential areas and in industrial areas |
| 21 | 6 | Tax effects on local government financing |

| Rank | Points | |
|---|---|---|
| 23 | 5 | Effect on the value of the sourrounding land |
| 24 | 4 | Cost to community of construction and operation of plant |
| 25 | 3 | Proper allocation of limited water supplies |
| 26 | 2 | Allowance for long-term research |
| 27 | 1 | Industrial expansion capabilities |
| 28 | 0 | How can insurance against disaster be financed |
| 28 | 0 | What are the possibilities for load management at that site |

Land Use

| Rank | Points | |
|---|---|---|
| 1 | 45 | Concern with valuable farm land being used to site the plant or transmission lines |
| 2 | 34 | Siting with regard to efficient distribution points |
| 3 | 26 | Impact of industrial and residential development of the plant vs. other uses for the land |
| 4 | 25 | Preserve archeological and historic sites |
| 4 | 25 | Siting with adequate water supply |
| 6 | 24 | Proximity to significant natural spots |
| 7 | 20 | Placement of poles along highways and railroad right-of-ways to keep them out of agricultural land |
| 8 | 19 | Utilizing existing railroad beds for transport of land |
| 9 | 17 | Land disposal of wastes |
| 10 | 13 | Site near industrial areas |

| Rank | Points | |
|---|---|---|
| 11 | 12 | Pole placement to avoid interference with irrigation and tilling |
| 12 | 10 | Impact on recreation in the area of the plant |
| 12 | 10 | DNR pushing power lines onto good agricultural land |
| 14 | 8 | Use of round poles vs. lattice type to conserve land |
| 14 | 8 | Minimize erosion from plant siting and siting of transmission lines |
| 16 | 7 | Research into power storage |
| 16 | 7 | Lease of the land for transmission line pole siting |
| 16 | 7 | Use the minimum amount of land necessary for the plant |
| 19 | 6 | Impact of transmission lines on wetlands |
| 20 | 3 | Put transmission lines underground |
| 21 | 2 | Proximity to communication links |
| 21 | 2 | Keep the trees along the roadways |

Final Ranking

| Rank | Points | |
|---|---|---|
| 1 | 35 | Is more electricity really needed in the area? |
| 2 | 28 | Effect on surface water availability in vicinity of site |
| 2 | 28 | Air pollution affecting health ($SO_2$, $NO_X$, etc.) |
| 4 | 21 | Effect of pollution on farming and farm crops in the area |
| 5 | 20 | Concern with valuable farm land being used to site the plant or transmission lines |
| 6 | 19 | Providing for efficient public input |
| 7 | 18 | What kind of energy source will be used; if nuclear, radioactivity |
| 8 | 15 | Small plants vs. large plants to eliminate transmission lines |
| 9 | 14 | Availability of fuel supply: domestic vs. foreign and plenty vs. scarce |
| 9 | 14 | Electric service reliability and cost |
| 11 | 12 | More efficient licensing and approval procedures |
| 12 | 11 | Effect of transmission lines on farmland |
| 12 | 11 | Location so as to minimze cost and problems of electrical distribution |
| 14 | 10 | Disturbance to unique or natural areas by power plant or transmission lines |

| Rank | Points | |
|---|---|---|
| 14 | 10 | Replacement of obsolete and wasteful plants with new, more efficient plants |
| 14 | 10 | Placement of poles along highways and railroad right-of-ways to keep them out of agricultural land |
| 17 | 9 | Fuel supply problems |
| 17 | 9 | Siting with regard to efficient distribution points |
| 19 | 7 | Quality of water affected by chemical and thermal pollution |
| 19 | 7 | Job creation |
| 21 | 6 | Preserve archeological and historic sites |
| 22 | 4 | Could the power plant utilize garbage and other wastes as fuels |
| 22 | 4 | Choice of fossil fuels substitution - from coal to sun to fusion |
| 22 | 4 | Impact of industrial and residential development of the plant vs. other uses for the land |
| 25 | 3 | Proximity to significant natural spots |
| 26 | 1 | Power plant location so as to eliminate distribution facilities (physical and economic) |
| 27 | 0 | Utilizing existing railroad beds for transport of fuel |
| 27 | 0 | Land disposal of wastes |
| 27 | 0 | Site near industrial areas |

GROUP 7

Biological and Physical

| Rank | Points | |
|---|---|---|
| 1 | 49 | Thermal pollution |
| 2 | 44 | Air pollution minimization |
| 3 | 41 | Need for energy investigation |
| 4 | 38 | Byproduct disposal |
| 4 | 38 | Water pollution |
| 6 | 37 | Effects on health |
| 6 | 37 | Effects on environment and drainage patterns of waterway diversion |
| 8 | 31 | Relation to population centers |
| 9 | 28 | Restoration of natural habitat |
| 9 | 28 | Plant safety |
| 11 | 23 | Loss of wildlife habitat |
| 12 | 22 | Wetland conservation |
| 12 | 22 | Investigation of alternatives |
| 14 | 21 | Solid waste disposal-dual use |
| 15 | 19 | Effect of transportation to area (railroads and highways) |
| 15 | 19 | Visual impact (minimal) |
| 17 | 18 | No construction before E.I.S. |
| 18 | 15 | Effects of transmission lines and substations (ozone, etc.) |
| 18 | 15 | Depletion of water resources |
| 20 | 12 | Waste heat utilization |
| 21 | 10 | Environmental impact of boom development |
| 21 | 10 | Magnitude of impacts |
| 23 | 8 | Siting near industrial areas |
| 23 | 8 | Burial of small transmission lines |
| 25 | 6 | Investigation of weather, geology of site (accidents, etc.) |
| 26 | 3 | Noise pollution |
| 26 | 3 | Adequate water available |

Economic and Social

| Rank | Points | |
|---|---|---|
| 1 | 59 | Tax cost and benefits to community |
| 2 | 51 | No construction money spent until full approval |
| 3 | 44 | Consumer cost of energy (effect on rates) |
| 4 | 42 | Projection methods for energy needs - impact of advertising |
| 5 | 40 | Full citizen participation and information on E.I.S. |
| 6 | 35 | Cultural impact, archeological site destruction |
| 7 | 34 | Effect on "quality of life" |
| 8 | 32 | Incentives to local townships (tax) |
| 9 | 27 | Safety |
| 10 | 25 | Secure long-term power supply and availability |
| 11 | 23 | True cost of alternative sources of energy |
| 12 | 18 | Allocation of investment dollars (opportunities lost) |
| 13 | 17 | Study of social and economic aspects of region and community |
| 14 | 16 | Effect of not having secure power |
| 14 | 16 | Incentives for use of off-peak power |
| 16 | 12 | Impact of construction boom (long-term) |
| 17 | 11 | Impact of physical extension of plant (smell, noise) |
| 18 | 10 | Cost-benefits of solid waste disposal |
| 18 | 10 | Discussion of cost of environmental improvements (emission controls, etc.) |
| 18 | 10 | Equitable allocation of costs |
| 21 | 9 | Psychological effects on local people |
| 21 | 9 | Willingness to build alternative pilot plants |
| 21 | 9 | Visual pollution |
| 24 | 8 | Effect of abandoned plant |
| 25 | 7 | Relocation of people |
| 25 | 7 | Siting near the point of use (economically efficient) |
| 25 | 7 | Equitable regulation of environmental aspects |
| 28 | 6 | Future recreational uses (fishing) |
| 29 | 5 | Impact of future industrial development |
| 30 | 3 | Employment (construction and maintenance) and impact of influx of skilled people |

Land Use

| Rank | Points | |
|---|---|---|
| 1 | 80 | Save good agricultural land |
| 2 | 73 | Long-term compatible landuse planning |
| 3 | 51 | Primary environmental corridor protection |
| 4 | 39 | Pursue energy center development |
| 5 | 31 | Siting next to existing facilities (land use) |
| 6 | 30 | Individual right to aesthetic beauty of countryside |
| 6 | 30 | Preservation of historical sites and archeological sites |
| 6 | 30 | Avoid building on hazardous sites |
| 9 | 29 | Avoidance of prime residential sites |
| 10 | 26 | Regional coordination of landuse planning |
| 10 | 26 | Recreational value of uncluttered countryside and use of recreational land |
| 12 | 24 | Effect of dollar value of adjoining properties |
| 13 | 22 | Stacking of power lines |
| 14 | 19 | Bury transmission lines |
| 15 | 18 | Route power lines with least possible visible pollution |
| 16 | 15 | Areas of unique geological value |
| 16 | 15 | Transmission lines should be included in E.I.S. |
| 18 | 11 | Leasing payment should be renegotiated periodically |
| 19 | 9 | Improve local area during construction and beautification |
| 20 | 7 | Identify beneficial impacts on landuse |
| 20 | 7 | Location near adequate cooling water |
| 22 | 5 | Disturbance of environment |
| 23 | 4 | Easy access to site |
| 24 | 2 | Land restoration after retirement of plant |

Final Ranking

| Rank | Points | |
|---|---|---|
| 1 | 52 | Save good agricultural land |
| 2 | 51 | Investigation of need for energy |
| 3 | 35 | Long-term compatible land use planning |
| 4 | 32 | Full citizen participation and info on EIS |
| 5 | 31 | Minimization of air pollution |
| 6 | 28 | Secure long-term power supply and availability |

GROUP 7

Final Ranking

| Rank | Points | |
|---|---|---|
| 7 | 26 | Projection methods for energy needs and impact of advertising |
| 8 | 25 | Primary environmental corridor protection |
| 9 | 23 | By-product disposal |
| 9 | 23 | Water pollution |
| 9 | 23 | Safety |
| 12 | 22 | Effect on quality of life |
| 13 | 21 | Relation to population centers |
| 14 | 19 | No construction money spent until full approval given |
| 15 | 17 | Tax incentives to local townships |
| 16 | 14 | Effects on health |
| 17 | 13 | Plant safety |
| 18 | 12 | Pursue energy center development |
| 19 | 11 | Avoid building on hazardous sites |
| 19 | 11 | Recreational value of uncluttered countryside and the use of recreational lands |
| 19 | 11 | Tax cost and benefits to community |
| 22 | 10 | Avoidance of prime residential sites |
| 22 | 10 | Restoration of natural habitat |
| 24 | 9 | Individuals right to aesthetic beauty of countryside |
| 24 | 9 | Consumer cost of energy, and effects on rate |
| 26 | 7 | Siting next to existing facilities |
| 26 | 7 | Thermal pollution |
| 26 | 7 | Cultural impact |
| 29 | 2 | Effects on environmental and drainage patterns of waterway diversions |

# APPENDIX C

## EAU CLAIRE WORKSHOP

### GROUP PARTICIPANTS

Group 1

John P. Kuziej
Keith Sommerfeld
Douglas D. Sorenson
Ralph Work
Jerry Foote
Roger Featherstone

Leader: David Younkman

Group 2

Dean Nelson
Richard Jann
Conrad Frogner
Richard Adler
Rod Nilsestuen
Gil Buettner
Lucille Bauer
Patrick Brick
Clifford Elliot
George L. Oncken

Leader: Bob Friedman

Group 3

Ken Mueller
Bob Nelson
Rich Petershack
John Horky
Don Hable
Mrs. Paul C. Bauer

Leader: Jill Randall

Group 4

Will Fantle
Howard R. Kruse
William Hehli
Margot Bouchard
Ronald K. Kryzenske
Alton R. Christopherson
Gordon Sill
David Raihle
Jerry Kripps

Leader: Elin Quigley

Group 5

Dorothy Owen
Stanley Cider
Ruth Lee
Marvin Lansing
Clyde Lehman
Albert Brokelman
E. J. Polasek
Rodney Johnson

Leader: Bob Terrell

Group 6

David Carlson
Brian Gabriel
R. T. Evans
Ruth Egerer
John Bacharach
Calvin Kraemer
Robert Petershack

Leader: Charles Andrews

GROUP 1

### Biological and Physical

| Rank | Points | |
|---|---|---|
| 1 | 33 | Deposition of waste materials |
| 2 | 30 | Depletion of non-renewable resources/fuels |
| 3 | 29 | Need for the plant |
| 4 | 26 | Removal of ag. land |
| 5 | 21 | Air pollution (from ash dust and coal trains - particulates, but broadened) |
| 5 | 21 | Thermal pollution of water |
| 7 | 15 | Damage from mining |
| 9 | 11 | Wildlife disruption/change |
| 9 | 11 | Low level radiation damage to ecosystems |
| 10 | 10 | Depletion of renewable resources - forests... |
| 11 | 9 | Water availability for transportation |
| 11 | 9 | Damage to environment from increased transportation needs |
| 11 | 9 | Radioactive pollutants added to water |
| 14 | 6 | Ecosystem damage from topsoil disturbance (runoff, etc.) |
| 14 | 6 | Concentration of radioactivity in dairy products |
| 16 | 5 | Transmission right-of-way as potential wildlife habitat |
| 16 | 5 | Cooling tower cloud |
| 18 | 4 | Thermal air pollution and climate change |
| 20 | 3 | Noise |
| 21 | 2 | Site elimination from future uses (esp. nuclear) |
| 22 | 1 | Damming of water to prevent flooding |
| 23 | 0 | Chemical pollutants added to water |
| 23 | 0 | Ozone build-up from transmission lines |
| 23 | 0 | Increased fire hazard |
| 23 | 0 | Water table disruption |
| 23 | 0 | Wetland disruption |
| 23 | 0 | Human exposure to explosions |
| 23 | 0 | Large ecosystem disruption from melt-down |
| 23 | 0 | Damming of water for hydro and disruption to the biosphere |
| 23 | 0 | Fish kills at water intakes |
| 23 | 0 | Alternative energy sources |

### Economic and Social

| Rank | Points | |
|---|---|---|
| 1 | 28 | Need for plant |
| 2 | 15 | Siting near load center |
| 3 | 14 | Responsibility to future generations |
| 4 | 13 | Human health and safety |
| 5 | 12 | Increased tax base |
| 5 | 12 | Which govt. level has the final say |
| 7 | 11 | Loss of land uses |
| 7 | 11 | Industrial opportunities |
| 7 | 11 | Economic incentives for alternatives |
| 10 | 10 | Cost to consumer |
| 11 | 9 | Increased expenses to communities (food, schools, water...) |
| 11 | 9 | New business |
| 11 | 9 | Change in land value |
| 11 | 9 | Equity/voice of public opinion - Do I, John Doe, has as much say as Vice-President of NSP? |
| 15 | 8 | Proximity to residential areas |
| 16 | 7 | Economic advantages of renewable vs. nonrenewable power sources |
| 16 | 7 | Increased population (long term growth) |
| 16 | 7 | Rural rights |
| 19 | 5 | Means of transmission |
| 20 | 4 | Condemnation right |
| 20 | 4 | Disruptions due to transportation (materials for building, maintenance, fuel...) |
| 22 | 3 | Social disruption from construction |
| 23 | 2 | Social fears |
| 24 | 0 | Large scale versus small, dispersed siting |
| 24 | 0 | Cost of land for site |
| 24 | 0 | Value change towards conservation |
| 24 | 0 | Capital loans |
| 24 | 0 | Construction/operational jobs |

### Land Use

| Rank | Points | |
|---|---|---|
| 1 | 22 | Disposal of waste |
| 2 | 20 | Use of valuable ag. land |
| 3 | 19 | Following zoning laws (too flexible) |
| 4 | 18 | Economic/ecological trade-offs |
| 5 | 16 | Land for transmission lines |
| 6 | 14 | Pollution to land and water |
| 7 | 13 | Size of sites |
| 8 | 12 | Build plant near land fill sites |
| 9 | 11 | Who determines land use? |
| 9 | 11 | Use of underground transmission lines whenever possible |
| 9 | 11 | Changing land values |
| 12 | 10 | Future land uses |
| 13 | 9 | Underground plant construction |
| 13 | 9 | Use of land for additional needed transportation facilities |
| 15 | 8 | Multiple use of area around the plant |
| 16 | 7 | Condemnation procedures |
| 17 | 4 | Forests |
| 17 | 4 | Wetlands |
| 19 | 1 | Value of transmission lines - firebreaks and wildlife habitat |
| 19 | 1 | Strip mining laws |
| 21 | 0 | Use of irrigation |
| 21 | 0 | Historical significance |
| 21 | 0 | Loss of scenic areas |
| 21 | 0 | Attitude toward conservation |
| 21 | 0 | Fly ash for fertilizer, concrete. etc. |

### Final Ranking

| Rank | Points | |
|---|---|---|
| 1 | 29 | Need for the plant |
| 2 | 27 | Deposition of waste materials |
| 3 | 21 | Responsibility to future generations |
| 4 | 18 | Pollution to land and water |
| 5 | 17 | Depletion of renewable resources (forests, etc.) |
| 6 | 15 | Depletion of non-renewable resources (fuel, etc.) |
| 7 | 13 | Economic incentives for alternatives |
| 8 | 11 | Use of valuable ag. land for sites, transmissions... |
| 9 | 9 | Build plant near land-fill areas |

GROUP 1

Final Ranking (continued)

| Rank | Points | |
|---|---|---|
| 10 | 8 | Economic/ecological trade-offs |
| 11 | 7 | Siting near load areas |
| 12 | 6 | Cost to consumer |
| 12 | 6 | Air pollution from ash dust and coal trains (particulates) |
| 12 | 6 | Who determines land use? |
| 15 | 5 | Loss of land uses |
| 15 | 5 | Increased tax base |
| 17 | 4 | Low level radiation damage to ecosystem |
| 18 | 3 | Use of underground transmission lines wherever possible |
| 18 | 3 | Following zoning laws |
| 20 | 2 | Thermal pollution of water |
| 20 | 2 | Human health and safety |
| 22 | 1 | Which government level has the final say? |
| 22 | 1 | Size of sites |
| 24 | 0 | Wildlife disruption/change |
| 24 | 0 | Damage from mining |
| 24 | 0 | Industrial opportunities |
| 24 | 0 | Land for transmission lines |
| 24 | 0 | Changing land values |

GROUP 2

Biological and Physical

| Rank | Points | |
|---|---|---|
| 1 | 39 | Air pollution |
| 2 | 32 | Nuclear fallout |
| 3 | 31 | Total monitoring of groundwater, streams and air |
| 3 | 31 | Locate on "poor" soil (SCS) |
| 5 | 29 | No nuclear waste disposal in area |
| 6 | 28 | Water availability (for everything) |
| 6 | 28 | Sufficient supply of water for plant |
| 8 | 26 | Minimize impact on water quality |
| 9 | 24 | Danger of nuclear malfunction |
| 10 | 23 | Radiation effects on biological systems |
| 11 | 22 | Health effects on local residents |
| 12 | 20 | Fly ash control |
| 13 | 18 | Transportation and transmission distances |
| 13 | 18 | Minimizing route construction to and from plant |
| 14 | 16 | Suitable soil and rock formations |
| 15 | 15 | Relocation of people |
| 16 | 14 | Where fuel is stockpiled |
| 17 | 13 | Fuel availability |
| 18 | 11 | Effects on underground water supply |
| 19 | 10 | Danger to wildlife habitat |
| 19 | 10 | Adequate collection of background information |
| 19 | 10 | Availability of transportation routes |
| 19 | 10 | Prevailing wind away from heavily populated area |
| 19 | 10 | Dairy milk monitoring |
| 24 | 9 | Waste water utilization (irrigation, etc.) |
| 24 | 9 | Transmission lines provide fire breaks |
| 26 | 8 | Effects on endangered species of plants and animals |
| 27 | 7 | Increase in water temperature from plant discharge |
| 27 | 7 | Concern for fog and water vapor |
| 29 | 6 | Spraying of transmission line right-of-way |
| 29 | 6 | Minimize visual impact of plants and lines |
| 31 | 5 | Noise impact on residences |
| 32 | 4 | Residential encroachment in remote areas |
| 32 | 4 | Sufficient distance from major highways to prevent adverse traffic conditions |
| 34 | 2 | Dust from traffic and materials handling |
| 34 | 2 | Destruction of scenery |
| 34 | 2 | Enough water for plants and animals in streams |
| 37 | 0 | Transmission line disturbance of bird flight patterns |
| 37 | 0 | Fuel transportation hazards |
| 37 | 0 | Noise impact on wildlife |

Economic and Social

| Rank | Points | |
|---|---|---|
| 1 | 35 | Proximity of plant to demand area |
| 2 | 29 | Increased cost of municipal services (road, fire, police) |
| 3 | 24 | Displacement of businesses and residences |
| 4 | 22 | Adequate regional supply of electricity |
| 5 | 21 | Energy for home heating |
| 6 | 20 | Added tax revenue to municipality |
| 6 | 20 | Encourage industry |
| 6 | 20 | Accelerated increase in land value |
| 6 | 20 | Loss of ag. land |
| 10 | 19 | Suitable transmission routes |
| 11 | 16 | Increase in employment during and after construction |
| 11 | 16 | Growth in area |
| 11 | 16 | Impact on area population patterns |
| 11 | 16 | Fear of living next to nuclear plant |
| 15 | 14 | Equitable compensation to land owners |
| 16 | 13 | Decrease in land values |
| 16 | 13 | Location for cost-effective regional power system |
| 18 | 12 | Avoid small plants |
| 18 | 12 | Possible decrease in local electrical cost |
| 20 | 11 | Education of populace to need and value of plant |
| 21 | 10 | Unfair tax structure |
| 21 | 10 | Reliability of local plant vs. distant one |
| 21 | 10 | Resource recovery opportunity (refuse derived fuel) |
| 24 | 9 | Electricity for food production |
| 24 | 9 | Conforming to local zoning desires |
| 26 | 8 | Close location to industry to minimize transmission line costs |
| 27 | 7 | Community dissension |
| 28 | 6 | Are utilities power-pooling? |
| 29 | 5 | Choice of fuel to keep costs down |
| 29 | 5 | Hydro-electric create lake and recreation |
| 29 | 5 | Construction related traffic |
| 32 | 4 | Increased state aid because of short term increase in population during construction |
| 32 | 4 | Soil suitable for construction (cost of building) |
| 34 | 3 | Economics of water supply |

GROUP 2

Economic and Social (continued)

| Rank | Points | |
|---|---|---|
| 35 | 2 | Loss of roads |
| 36 | 1 | Extra security precautions needed |
| 37 | 0 | Additions to schools |
| 37 | 0 | Conservation practices |
| 37 | 0 | Solid wastes disposal alternative |
| 37 | 0 | Encourage small plants |

Land Use

| Rank | Points | |
|---|---|---|
| 1 | 39 | Avoid environmentally sensitive areas |
| 2 | 33 | Loss of ag. land |
| 3 | 31 | Buffer zone between plant and residential area |
| 4 | 28 | Water supply |
| 5 | 27 | Use a minimal amount of land |
| 6 | 24 | Neighborhood compatibility |
| 7 | 22 | More local govt. input on siting (local decision on eminent domain) |
| 8 | 21 | Avoid airports |
| 9 | 20 | Appropriate transmission routes |
| 10 | 19 | Stay out of flood plain |
| 11 | 18 | Re-evaluation of roads |
| 12 | 16 | Suitability of foundation soils |
| 12 | 16 | Change in zoning patterns |
| 14 | 15 | Keep transmission line routes open and accessible |
| 15 | 14 | Loss of water for irrigation of crop-lands (limits land use) |
| 16 | 12 | Closing of roads |
| 17 | 11 | Avoid direct crossing of crop land with transmission lines |
| 18 | 10 | Mix land use types |
| 18 | 10 | Transmission line effects - radio, TV, noise |
| 18 | 10 | Limit reserve of parks and forests |
| 18 | 10 | Soil suitability for sewage disposal |
| 18 | 10 | Limiting access to lakes and streams |
| 23 | 8 | Use surrounding land for crops |
| 24 | 5 | Preserve historical landmarks |
| 25 | 4 | Building code compliance |
| 25 | 4 | Compatability with regional plans |
| 27 | 3 | Effect on recreation |
| 28 | 0 | Hydro-electric - loss of scenic streams |
| 28 | 0 | Soil conservation maintained in adjacent land |
| 28 | 0 | Loss of scenic values |

Final Ranking

| Rank | Points | |
|---|---|---|
| 1 | 30 | Avoid environmentally sensitive areas |
| 2 | 27 | Proximity of plant to demand area |
| 3 | 24 | Loss of ag. land |
| 4 | 23 | More local govt. input on siting (local decision on eminent domain) |
| 5 | 21 | Air pollution |
| 5 | 21 | Total monitoring of groundwater, air and streams |
| 7 | 18 | Use a minimal amount of land |
| 8 | 17 | Suitable transmission routes |
| 9 | 16 | Increased cost of municipal services |
| 10 | 15 | Water availability |
| 10 | 15 | Nuclear fallout |
| 10 | 15 | Adequate regional supply of electricity |
| 10 | 15 | Displacement of businesses and residences |
| 14 | 14 | Buffer zone between plant and residential area |
| 15 | 13 | Added tax revenue to municipality |
| 16 | 12 | Encourage industry |
| 17 | 11 | Radiation effects on biological systems |
| 17 | 11 | Neighborhood compatibility |
| 19 | 10 | Located on "poor" soil |
| 20 | 9 | Sufficient supply of water for plant |
| 20 | 9 | Energy for home heating |
| 20 | 9 | Accelerated increase in land values |
| 23 | 8 | Danger of nuclear malfunction |
| 23 | 8 | Minimize impact on water quality |
| 23 | 8 | Avoid airports |
| 26 | 6 | No nuclear waste disposal in area |
| 27 | 0 | Stay out of flood plain |

GROUP 3

Biological and Physical

| Rank | Points | |
|---|---|---|
| 1 | 45 | Air pollution (coal and nuclear effects) |
| 2 | 24 | Type of fuel used |
| 3 | 23 | Effects on ag. production |
| 4 | 20 | Distance of plant to heavy population centers |
| 5 | 19 | Water availability for cooling |
| 6 | 17 | Use of prime ag. land |
| 7 | 16 | Disposal of plant wastes |
| 7 | 16 | Disposal and handling of nuclear wastes |
| 7 | 16 | Effects of transmission lines |
| 10 | 14 | Consideration of future energy needs |
| 11 | 13 | Safety |
| 11 | 13 | Physical condition of the land |
| 13 | 11 | Away from prevailing winds |
| 13 | 11 | Effects on local population |
| 13 | 11 | Disruption of ecosystem |
| 16 | 10 | Is plant really needed? |
| 17 | 9 | Frequency of severe storms |
| 17 | 9 | Low level local radiation |
| 19 | 8 | Thermal pollution (raising temperatures) |
| 19 | 8 | Radioactive emissions in drinking water |
| 21 | 7 | Probability of catastrophe |
| 22 | 3 | Noise pollution |
| 22 | 3 | Proximity to lakes and streams |
| 24 | 2 | Hazards of decommissioning (nuclear) |
| 25 | 1 | Geological stability |
| 25 | 1 | Good agricultural effects of sulphur from coal burning |
| 27 | 0 | Location of plant relative to user market |
| 27 | 0 | Moving of plant parts to the sites |
| 27 | 0 | Insurance (adequate?) |
| 27 | 0 | Probability of sabotage of nuclear plant |
| 27 | 0 | Plans for evacuation in case of accident |

GROUP 3

Economic and Social

| Rank | Points | |
|---|---|---|
| 1 | 28 | Effects on public health |
| 2 | 24 | Type of fuel used |
| 3 | 23 | Distribution of utility tax |
| 4 | 22 | Consideration of energy demand |
| 5 | 19 | Jobs provided by plant |
| 6 | 16 | Displacement of people |
| 7 | 14 | Impact on local taxes |
| 8 | 13 | Adequacy of evac. plants |
| 8 | 13 | Availability of adequate disaster insurance |
| 10 | 11 | Life expectancy of plant |
| 10 | 11 | Problems of nuclear waste disposal |
| 10 | 11 | Disruption of social order |
| 13 | 10 | Location in area of light agriculture |
| 13 | 10 | Amount of land taken (too much?) |
| 15 | 9 | Location in lightly populated area |
| 16 | 8 | Effects on agricultural productivity |
| 16 | 8 | Supply energy to local area |
| 18 | 6 | Adequacy of existing area services and protection |
| 19 | 5 | Consideration of cost per length of plant life |
| 20 | 4 | How fuel will be transported |
| 21 | 3 | Post-construction economic impact |
| 21 | 3 | Effects on land value |
| 23 | 2 | Transportation needs of operation |
| 24 | 1 | Cost and time of construction of plant |
| 24 | 1 | DNR and EPA |
| 26 | 0 | Economic demands on area construction |
| 26 | 0 | Effects on maintenance of local highways |

Land Use

| Rank | Points | |
|---|---|---|
| 1 | 34 | Location near industrial areas |
| 2 | 32 | Loss of ag. land |
| 3 | 27 | Amount of land taken |
| 3 | 27 | Where fuel is stored |
| 5 | 24 | Location away from residential areas |
| 6 | 21 | Effects of air pollution on nearby land |
| 7 | 17 | Scenic values |
| 8 | 14 | Preservation of waterways and wetlands |
| 8 | 14 | Consistent with local zoning |
| 10 | 13 | Maintenance of property values |
| 10 | 13 | Effects on fishing and hunting |
| 12 | 10 | Drying up wells (depleting ground water) precludes other uses of water |
| 12 | 10 | Plant should make use of local resources (people, other) |
| 14 | 9 | Important historical or archeological sites and landmarks |
| 15 | 7 | Effects on tourism (recreation areas) |
| 16 | 3 | Use of woodland as buffer zone |
| 17 | 0 | Location of stacks in relation to air travel |

Final Ranking

| Rank | Points | |
|---|---|---|
| 1 | 34 | Use of prime ag. land |
| 2 | 19 | Location near industrial areas |
| 3 | 18 | Amount of land taken |
| 4 | 17 | Disposal and handling of nuclear wastes |
| 5 | 15 | Loss of agricultural land |
| 6 | 14 | Disposal of plant wastes |
| 6 | 14 | Effects on public health |
| 8 | 13 | Air pollution |
| 8 | 13 | Types of fuel used |
| 10 | 11 | Impact on local taxes |
| 10 | 11 | Where fuel is stored |
| 12 | 9 | Effects on agricultural production |
| 12 | 9 | Effects of transmission lines |
| 12 | 9 | Distribution of utility tax |
| 15 | 7 | Water availability for cooling |
| 15 | 7 | Consideration of future energy needs |
| 15 | 7 | Adequacy of evacuation plans |
| 15 | 7 | Location away from residential areas |
| 19 | 6 | Jobs provided by plant |
| 19 | 6 | Availability of adequate insurance |
| 21 | 3 | Distance from heavy population centers |
| 21 | 3 | Displacement of people |
| 23 | 2 | Consideration of future energy demand |
| 24 | 1 | Scenic values |
| 24 | 1 | Consistent with local planning and zoning |
| 26 | 0 | Disruption of community social order |
| 26 | 0 | Effects of air pollution |
| 26 | 0 | Preservation of waterways-wetlands |
| 26 | 0 | Maintenance of property values |
| 26 | 0 | Effects on fishing and hunting |

GROUP 4

Biological and Physical

| Rank | Points | |
|---|---|---|
| 1 | 42 | Impact of heated water on fish, algae |
| 2 | 39 | Air concerns for downwind areas |
| 3 | 38 | Physical breakdown of plant (explosion, accident, etc.) |
| 4 | 37 | Availability of adequate water for plant cooling |
| 5 | 35 | Radiation impacts on all living things |
| 6 | 32 | Particulate pollution to air |
| 7 | 23 | Radioactive emissions to air |
| 8 | 19 | Waste removal and disposal |
| 9 | 18 | Availability of fuel |
| 10 | 16 | Transmission line size and routing |
| 10 | 16 | Protection from natural disasters |
| 10 | 16 | Compatability to comprehensive zoning |
| 13 | 15 | Fogging effect of cooling towers |
| 14 | 14 | Impact on the environment |
| 14 | 14 | Water drawdown |
| 14 | 14 | Buffer zone |
| 17 | 13 | Needs - location, necessity of power |
| 18 | 12 | Emotional effect on people |
| 18 | 12 | Global effect on weather |
| 20 | 10 | Land not suitable for parks, residential or ag. land |
| 20 | 10 | Physical location that can be protected |
| 22 | 8 | Effect of noise on plant neighbors |
| 23 | 7 | Impact of coal transportation on communities |
| 24 | 6 | Nuclear fission unnatural in universe |
| 25 | 4 | Radioactive impacts on aquatic environ. |
| 25 | 4 | Radiation effects on soil |
| 25 | 4 | Availability of transportation |
| 28 | 1 | Visibility of plant |

GROUP 4

Biological and Physical (continued)

| Rank | Points | |
|---|---|---|
| 29 | 0 | Greenhouse effect of evaporation of water |
| 29 | 0 | Electrical disturbances |
| 29 | 0 | Weather concerns |

Economic and Social

| Rank | Points | |
|---|---|---|
| 1 | 49 | Relocation of existing land use |
| 2 | 35 | Public health effects |
| 3 | 30 | Public safety concerns |
| 3 | 30 | Who has decision/policy making control |
| 5 | 28 | Availability of waste disposal sites |
| 6 | 24 | Will it provide jobs locally |
| 6 | 24 | Current and future cost of fuel |
| 8 | 23 | Community need for power - locally and regionally |
| 9 | 21 | Provides a tax base |
| 10 | 20 | Impact of facility on utility rates |
| 11 | 18 | Impact on local schools |
| 12 | 17 | Operating costs over long time framework |
| 13 | 16 | Cost of the policy |
| 14 | 13 | Transportation needed - roads, RR |
| 15 | 12 | Change in character of local area |
| 16 | 10 | Effect on property values |
| 17 | 9 | Impact on housing |
| 18 | 8 | Effect of power lines on land values |
| 18 | 8 | Who pays for environment damage? |
| 18 | 8 | Increase in population |
| 21 | 7 | Availability of skilled personnel |
| 22 | 5 | Nearness to fuel supply |
| 22 | 5 | Social impact on performing arts (available facilities, etc.) |
| 22 | 5 | Facility location in relation to population |

Land Use

| Rank | Points | |
|---|---|---|
| 1 | 49 | Ag. land preservation |
| 2 | 37 | Amount of loss and disturbance to local based ag. |
| 3 | 32 | Restricts adjacent land use (compatability) |
| 3 | 32 | Proximity to fuel source vs. transmission losses |
| 5 | 30 | Highest and best use of the property |
| 6 | 23 | Effect on future growth and development |
| 6 | 23 | Equitable distribution of regional costs and benefits |
| 6 | 23 | Need for transmission line ROW |
| 9 | 21 | Effect of changing uses of land and water resources |
| 10 | 14 | Devaluation of surrounding homes |
| 11 | 13 | Protecting recreational areas |
| 12 | 12 | Buffer zone between plant and surroundings |
| 13 | 11 | Preserve unusual wildlife (habitat, etc.) |
| 13 | 11 | Destruction and/or devaluation of scenic areas |
| 13 | 11 | Population of surrounding area |
| 16 | 9 | Preventing land abuse: erosion, tree cutting, etc. |
| 16 | 9 | Restriction of public uses, hunting/hiking, etc. |
| 16 | 9 | Locating a power plant near consumers |
| 19 | 8 | Location near lakeshore/riverbank |
| 20 | 7 | Alternative cooling technologies so river, lake site not necessary |
| 20 | 7 | Quality of soils for proposed uses |
| 22 | 2 | Destruction of historical sites |
| 23 | 0 | Preserving scientific areas |
| 23 | 0 | Price of land |

Final Ranking

| Rank | Points | |
|---|---|---|
| 1 | 38 | Ag. land preservation |
| 2 | 37 | Public health effects |
| 3 | 32 | Community need for power |
| 4 | 24 | Amount of loss and disruption to local agriculture |
| 5 | 22 | Public safety concerns |
| 6 | 21 | Availability of adequate water |
| 7 | 18 | Radiation impacts on all living things |
| 8 | 16 | Highest and best use |
| 8 | 16 | Will it provide jobs locally |
| 8 | 16 | Provides a tax base |
| 11 | 14 | Waste removal and disposal |
| 12 | 13 | Transmission line ROW |
| 13 | 11 | Current and future cost of fuel |
| 13 | 11 | Physical breakdown of plant |
| 13 | 11 | Effect on future growth |
| 16 | 10 | Effect of changing uses of land and water resources |
| 16 | 10 | Air concerns for downwind areas |
| 16 | 10 | Impact of facility on utility rates |
| 19 | 8 | Thermal pollution |
| 20 | 7 | Particulate pollution to air |
| 20 | 7 | Transmission line size and routing |
| 22 | 6 | Proximity to fuel source |
| 22 | 6 | Who has decision/policy making control |
| 24 | 5 | Restricts adjacent land use |
| 25 | 4 | Equitable distribution |
| 26 | 3 | Devaluation of surrounding homes |
| 26 | 3 | Protection from natural disasters |
| 26 | 3 | Relocation of existing land use |
| 29 | 2 | Compatability to comprehensive zoning |
| 30 | 1 | Availability of fuel |
| 31 | 0 | Availability of waste disposal site |
| 31 | 0 | Radioactive emissions to air |

GROUP 5

## Biological and Physical

| Rank | Points | |
|---|---|---|
| 1 | 42 | Radioactive emissions from plant which are long lasting |
| 2 | 32 | Need for baseline data and monitoring data |
| 3 | 29 | Thermal pollution in the river |
| 4 | 27 | The plant should not be detrimental to the health of people in the area |
| 5 | 26 | Impact on other valuable natural resources (timber, groundwater, etc.) |
| 6 | 21 | Disposal of nuclear wastes |
| 7 | 20 | Minimal disturbance of plant and animal environments |
| 8 | 19 | Potential for biological mutation |
| 8 | 19 | Research needed to develop data in areas where such data is lacking or inadequate |
| 10 | 17 | Will water use by the plant lower the water table? |
| 10 | 17 | Location of plant to minimize obstructions and interventions to other natural areas such as scenic or wild rivers,etc. |
| 12 | 16 | Destruction of soil fertility by nuclear plants |
| 12 | 16 | Meeting or maintaining air quality standards in the area |
| 14 | 15 | The need to be able to predict or estimate the potential environmental impact of the changes we propose |
| 15 | 14 | Disruption to the environment caused by the process of extracting and shipping fuel |
| 16 | 13 | Loss of natural land due to disposition of ash and $SO_2$ scrubber sludge |
| 17 | 11 | Concern for the number of natural areas which remain for future generations |
| 18 | 7 | Availability of water for use by the plant could vary with size and type of plant |
| 18 | 7 | Visual impact of transmission lines |
| 20 | 6 | Destruction of natural vegetation in transmission corridors |
| 21 | 5 | Mimimize noise pollution |
| 22 | 4 | Visual impact of tall stacks and strobe lights |
| 23 | 2 | Location of plant near use area to minimize disruption to surrounding areas caused by transmission lines |

## Economic and Social

| Rank | Points | |
|---|---|---|
| 1 | 35 | Need to conserve energy produced from non-renewable fuel sources |
| 2 | 29 | What social controls are implied by the "spartan" life which may result if energy production is limited |
| 3 | 26 | Need to produce more electrical power to replace oil and gas energy supplies |
| 3 | 26 | Long term social needs should take precedence over higher short term capital costs - minimize throw away mentality |
| 5 | 25 | Use of solid waste as fuel when possible |
| 6 | 23 | Waste of energy represented in cooling water |
| 7 | 21 | Need to increase utilization of solar energy |
| 8 | 17 | Concern for potential dangers |
| 8 | 17 | Concern for the rights of communities and the need to retain the ability to make their own decisions |
| 10 | 16 | The most economical future power plants that will fit the environment |
| 11 | 15 | Public accepts liability for nuclear plant accidents due to Price-Anderson Act |
| 12 | 13 | Need to provide energy for the employment of our citizens |
| 13 | 11 | Need to know both production and demand within any area |
| 13 | 11 | Need to prioritize energy needs - which are necessary and which energy uses can we really do without if necessary |
| 13 | 11 | Cost of power to the consumer |
| 16 | 10 | Present and future need for power in both rural and urban sectors |
| 16 | 10 | Beneficial economic impact on business |
| 16 | 10 | Reduction in number of jobs caused by automation of newer power plants |
| 16 | 10 | Increased attention to electric plant as approach to other energy distribution systems because of its concentrated nature |
| 16 | 10 | Danger of sabotage of nuclear plants |
| 21 | 9 | Effect on property values, both inflation of value and detriment resulting from increased taxes |
| 22 | 8 | Interdependence of communities and areas - recognize the inability to ship all the bad aspects of decisions elsewhere while keeping most of the benefits |
| 23 | 7 | Production of electricity within an area and associated effects, but use of this energy outside the area and little use within area of production |
| 24 | 6 | Nuclear plants are too expensive |
| 25 | 5 | Increased employment in site where plant is located |
| 26 | 2 | Population growth increases demand for services in area where plant is located |
| 27 | 1 | Relocation of people from proposed power plant site |
| 28 | 0 | Need to blend plant into community |

## Land Use

| Rank | Points | |
|---|---|---|
| 1 | 36 | Locate plant where power is needed |
| 2 | 34 | Concern for the preservation of good agricultural land |
| 3 | 29 | Locate plant on land that has marginal use for other uses |
| 4 | 27 | Locate plant where amount of transmission lines is minimized |
| 5 | 26 | Need to restore the natural character of the land both where fuel is extracted and where obsolete facilities are abandoned |

## GROUP 5

### Land Use (continued)

| Rank | Points | |
|---|---|---|
| 6 | 20 | Structures should blend in with areas |
| 7 | 13 | Are small towns expendable |
| 7 | 13 | Avoid wetlands if possible |
| 9 | 11 | Stay away from congested areas |
| 10 | 10 | Create and preserve park and recreation land |
| 11 | 8 | Preserve historic and cultural sites |
| 12 | 7 | Visual impact of transmission lines |
| 12 | 7 | Avoid wildlife habitat |
| 14 | 3 | Strobe lights unsightly |
| 15 | 2 | Who decides "what is a scenic area" |
| 16 | 1 | Avoid cemeteries |

### Final Ranking

| Rank | Points | |
|---|---|---|
| 1 | 27 | Concern for potential dangers |
| 2 | 19 | Conserve energy from non-renewable sources |
| 2 | 19 | Preserve good agricultural land |
| 4 | 18 | Disposal of nuclear wastes |
| 4 | 18 | Not detrimental to human health |
| 4 | 18 | Social controls implied if energy production limited |
| 7 | 16 | Use of solid waste as fuel where possible |
| 7 | 16 | Restore natural character of land |
| 9 | 13 | Minimal disturbance of plant and animal environments |
| 10 | 12 | Thermal pollution |
| 10 | 12 | Long lived radioactive emissions |
| 12 | 11 | Locate plant where power needed |
| 13 | 10 | Need for electricity to replace gas and oil energy sources |
| 13 | 10 | Beneficial impact on businesses |
| 13 | 10 | Strobe lights unsightly |
| 16 | 9 | Need for baseline and monitoring data |
| 16 | 9 | Waste of energy in cooling water |
| 16 | 9 | Structures blend in with area |
| 16 | 9 | Small towns expendable |
| 16 | 9 | Increased employment in areas near sites |
| 21 | 8 | Locate plant on land with marginal use for other uses |
| 22 | 7 | Potential for biological mutation |
| 22 | 7 | Need to increase utilization of solar energy |
| 24 | 6 | Visual impact of transmission lines |
| 24 | 6 | Preserve historic and cultural sites |
| 26 | 4 | Long term social needs take precedence over short term capital costs |
| 26 | 4 | Concern for rights of communities - local decision making |
| 26 | 4 | Site away from congested areas |
| 26 | 4 | Minimize transmission lines |
| 30 | 2 | Water use lowering water table |
| 30 | 2 | Location to minimize intervention in natural areas |
| 30 | 2 | Avoid wildlife habitat |
| 33 | 0 | Impact on other natural areas (timber, etc.) |
| 33 | 0 | Research needed to develop baseline data where inadequate |
| 33 | 0 | Most economic plants that will fit the environment |
| 33 | 0 | Avoid wetlands |
| 33 | 0 | Create and preserve park and recreational land |

## GROUP 6

### Physical and Biological

| Rank | Points | |
|---|---|---|
| 1 | 45 | Deposition of residue from plant - radioactive wastes |
| 2 | 44 | Health problems - general public |
| 3 | 35 | Radioactive pollution |
| 4 | 27 | Use of prime agricultural land |
| 5 | 25 | Location in regard to wind direction |
| 6 | 22 | Availability of water at all times |
| 7 | 21 | Impact on domestic and irrigation wells |
| 8 | 17 | Impact on endangered plant, animal fish species |
| 8 | 17 | Potential effect on drinking water, especially on surface water |
| 10 | 15 | Potential effects of transport problems for either coal or nuclear |
| 10 | 15 | Smoke - sulfur |
| 10 | 15 | Impact on the food chain |
| 13 | 13 | Noise |
| 14 | 12 | Concern with view becoming obstructed by dirty air |
| 14 | 12 | Soil erosion due to all possible causes |
| 16 | 11 | Health hazards to the workers |
| 17 | 10 | Thermal pollution of the water |
| 18 | 6 | Impact of new roads and/or railroads |
| 18 | 6 | Visual impact |
| 18 | 6 | Deposition of fly ash |
| 21 | 5 | Placing transmission lines in major bird flyways |
| 22 | 2 | Can local agencies monitor the impacts of the power plant |
| 22 | 2 | Geographic area covered by the plant - are there unnecessary land uses |
| 24 | 0 | Concern with fog and ice |

### Economic and Social

| Rank | Points | |
|---|---|---|
| 1 | 43 | Quality of life - will it improve or diminish |
| 2 | 29 | Impact on schools, law enforcement, hospitals and social service agencies |
| 3 | 26 | Impact of large population flux |
| 4 | 22 | Radioactive waste disposal and storage - economic aspects -- how much does it cost? |
| 5 | 21 | Can you make do by conserving energy |
| 6 | 20 | Effect of state tax levy limits on communities faced with rapid expansion and contraction |
| 7 | 15 | Utility taxes - how they are distributed |
| 8 | 13 | Cost of living increase |
| 9 | 12 | Labor force generated, both primary and secondary |
| 9 | 12 | Impact on land values |

GROUP 6

Economic and Social (continued)

| Rank | Points | |
|---|---|---|
| 9 | 12 | Potential for replacement of central station plants by solar energy, wind, or other alternatives |
| 12 | 11 | Zoning - is there any |
| 12 | 11 | Danger of a nuclear power accident |
| 14 | 8 | Cost of power for various types of plants |
| 14 | 8 | Impact on other industries - displacement |
| 14 | 8 | Is the power needed - or is demand being created |
| 14 | 8 | Cost of health problems created by power plants |
| 18 | 7 | Financing costs for planning and needed facilities |
| 19 | 6 | Possible decrease of recreational areas |
| 19 | 6 | Productivity after the plant is decommissioned |
| 21 | 5 | The need for housing |
| 22 | 4 | Solid waste disposal - caused by increased population |
| 22 | 4 | Will there be growth of commercial areas near the plant |
| 22 | 4 | Power plant security |
| 25 | 3 | Fuel availability - especially uranium |
| 26 | 2 | Effects of the availability of more power |
| 26 | 2 | Cost of monitoring |
| 28 | 0 | Increased demand on sewage system |
| 28 | 0 | Job allocation - will jobs be filled by locals or outsiders |
| 28 | 0 | Is there local opposition to nuclear power |
| 28 | 0 | Outmigration of residents as a result of construction |
| 28 | 0 | Effect of population decrease after construction is finished |
| 28 | 0 | What type of financing is available - is industry bonding available |

Land Use

| Rank | Points | |
|---|---|---|
| 1 | 39 | Avoidance of natural hazards - earthquakes, floods |
| 2 | 33 | Liability for land contamination |
| 3 | 20 | Zoning - is it adequate to meet new growth demands |
| 4 | 18 | Need for highways or rivers for transportation |
| 4 | 18 | Locating land for waste disposal |
| 6 | 17 | Vanishing agricultural land |
| 6 | 17 | Land use legislation |
| 8 | 15 | Destruction of wildlife habitats |
| 9 | 13 | Problems caused by new transportation demands |
| 9 | 13 | Requirements for abandoning |
| 11 | 11 | Use of land after power plant is gone |
| 12 | 10 | Land needed besides that for the actual plant construction |
| 12 | 10 | Will power plant affect use of land near the site |
| 12 | 10 | Will more power bring more industrial growth |
| 15 | 6 | Height of structure - in regard to aircraft and obstruction of view |
| 15 | 6 | Condemnation of land for the site |
| 17 | 5 | Recreational use - by how many people |
| 17 | 5 | Is land value affected |
| 19 | 4 | Type of highway traffic generated by power plant |
| 20 | 1 | Will new transmission lines be needed and will they follow existing corridors |
| 21 | 0 | Will new railroads be needed or are existing ones adequate |
| 21 | 0 | Destruction of historical landmarks |

Final Ranking

| Rank | Points | |
|---|---|---|
| 1 | 44 | Quality of life |
| 2 | 31 | Health problems - general public |
| 3 | 27 | Avoidance of natural hazards |
| 4 | 24 | Deposition of the residue from the plant - radioactive wastes |
| 5 | 23 | Zoning - is it adequate |
| 6 | 16 | Conservation |
| 7 | 15 | Vanishing agricultural land |
| 8 | 14 | Radioactive pollution |
| 9 | 13 | Liability for land contamination |
| 10 | 12 | Land use legislation |
| 10 | 12 | Availability of water |
| 12 | 10 | Replacement of central station with solar, wind and other alternatives |
| 13 | 8 | Wildlife habitat |
| 14 | 7 | Utility taxes - how are they distributed |
| 15 | 5 | Effect of state tax levy limits |
| 16 | 4 | Requirement for abandonment |
| 17 | 3 | Potential effect on drinking water - especially surface water |
| 18 | 2 | Transportation - need for more |
| 18 | 2 | Cost of living increase |
| 18 | 2 | Location in regard to wind direction |
| 21 | 1 | Impact on schools, law enforcement, hospitals, social services |
| 22 | 0 | Waste disposal - locating land |
| 22 | 0 | Impact of a large population flux |
| 22 | 0 | Impact on land values |
| 22 | 0 | Labor force generated, primary and secondary |
| 22 | 0 | Smoke - sulfur |

# APPENDIX D

## STEVENS POINT WORKSHOP

### GROUP PARTICIPANTS

#### Group 1

David Ankley
Ron Meyer
Jackie Mooney
Hazel Aton
Bill Apfelbeck
Walter G. Wifeld
Lee Burress
Lester Palmer
D. L. Cronkrite

Leader: David Younkman

#### Group 2

Ken Robenolt
Vernon Iverson
Emil Scheurer
John Wandrey
Dave Smith
Alton E. Goerlitz
Charles Livingston
Gertrude Dixon
Barbara Hug

Leader: Jill Randall

#### Group 3

Max Andrae
Don Everingham
Albert Grutzik
Blanche Siegler
Marlene Schirz
Monica Bainter
Jerry Mroczkowski
Carl Guelcher
Paul Wright
Richard Roth
Steve Greuel

Leader: Bob Friedman

#### Group 4

Jim Hamilton
Judy Lokken
Lewis C. Wood
Bill Tolley
Myron Golembiewski
Harry A. Mortensen
Ingred Roach
A. J. Karasch

Leader: Bob Terrell

#### Group 5

George Dixon
Christy Smith
Phyllis Sultze
Lucille Baker
Ken Knapp
Fred E. Field
C. F. Saylor
Burleigh D. Riggle
Gerald H. Teletzke
Cornelia Groshek
Kenneth G. Pagels
Jon Smith

Leader: Elin Quigley

#### Group 6

Helen Molepski
William H. Kruger
Jeff Littlejohn
Janet Minter
Don Grade
Al Berkman
Herbert L. Rieckmann, Jr.
Robert Robicheau
Cindy Voigt

Leader: Charles Andrews

## GROUP 1

### Biological and Physical

| Rank | Points | |
|---|---|---|
| 1 | 65 | Air pollution - visible - smoke, particulate |
| 2 | 55 | Contamination of soil, water and vegetation, effects on food cycle |
| 3 | 45 | Air pollution - invisible - chemicals, radiation, odor |
| 4 | 29 | Effects on wildlife and domestic animals |
| 4 | 29 | Solid waste disposal from plant and effects on environment |
| 6 | 26 | Danger of microwave activity from HV transmission on cellular tissue and circulatory system: human/animal |
| 7 | 23 | Water pollution - fish and vegetation kill |
| 8 | 18 | Removal of recreation and/or ag. lands |
| 9 | 16 | Need vs. danger to the community |
| 9 | 16 | Danger of any degree of radioactivity from any source associated with power plants |
| 11 | 15 | As near as practical to power demand |
| 11 | 15 | Danger to milk production from debris effects on forage |
| 13 | 13 | Biological and physical effects of producing fuel |
| 14 | 12 | Comparison of radioactivity - coal vs. nuclear |
| 14 | 12 | Nuclear radiation - effect on employees - cumulative and short-term |
| 16 | 11 | Any changes affecting life-style |
| 16 | 11 | Concerns of power plant affecting weather |
| 16 | 11 | Nuclear radiation - cumulative and acute on all human and animal life |
| 19 | 10 | Close to or near fuel source or fuel transportation system |
| 19 | 10 | Determination of need |
| 21 | 9 | Noise |
| 21 | 9 | Aesthetic incompatability of plant and transmission lines |
| 23 | 8 | Sabotage and nuclear blowouts/meltdowns, effects on environment, and safety of community |
| 24 | 5 | Danger to irrigation water from nuclear radiation |
| 25 | 3 | Associated growth from plant - especially rural areas |
| 25 | 3 | Maintain or establish smaller plants in lieu of larger plants |
| 27 | 2 | Danger from natural radiation |
| 28 | 0 | Sites, plants not in heavily populated area |
| 28 | 0 | Safety dangers due to increased highway and rail usage |
| 28 | 0 | Effect of power plants' water demand on other water users |

### Economic and Social

| Rank | Points | |
|---|---|---|
| 1 | 37 | Effect on existing and potential future recreation areas |
| 2 | 34 | Present taxes vs. new employment, need, economic impact to community |
| 3 | 26 | Effect on local population |
| 3 | 26 | What kind of growth do we want? |
| 5 | 25 | Increased local property taxes required to support increased services |
| 5 | 25 | Special discount - reduced electric bill to consumers near plant |
| 5 | 25 | Potential harmful/beneficial effects |
| 8 | 23 | Local citizens have much less control over their lives |
| 9 | 21 | Job supply - during construction, operation and indirect effects |
| 10 | 20 | Police state measures necessary to control sabotage |
| 10 | 20 | Education to local people of need versus hazards |
| 12 | 19 | Greater tax return to local governments - first five years |
| 13 | 17 | Proximity to demand area |
| 14 | 16 | Need vs. industrial, commercial, agricultural, educational effects |
| 15 | 15 | Concern - operation, decisions unresponsive to local needs |
| 15 | 15 | Danger to local traditional, archeological, cultural sites |
| 17 | 14 | Available power encourages some new industries |
| 17 | 14 | Direct energy costs to user |
| 19 | 11 | Massive plants - fewer jobs and more welfare |
| 20 | 10 | Effect on local wage scale |
| 21 | 9 | Only the company and employees make the profit |
| 21 | 9 | Cost of construction |
| 23 | 8 | Available power sources |
| 25 | 6 | Why locate it here |
| 25 | 6 | Requirements and needs of the increased work force |
| 26 | 4 | Quality of people brought in |
| 27 | 0 | Fair regulation |
| 27 | 0 | Trade skills required and its availability locally |

### Land Use

| Rank | Points | |
|---|---|---|
| 1 | 45 | Effect on water supplies |
| 2 | 37 | Aesthetics |
| 3 | 33 | Transportation needs |
| 3 | 33 | Impact and disruptions to people and communities |
| 5 | 32 | Regional recreational development vs. economic needs for power development |
| 6 | 30 | To be located in area of least disturbance to natural environment |
| 7 | 25 | Effects on adjacent land |
| 8 | 24 | The assurance that the plant will be an attractive installation |
| 8 | 24 | Positive insurance of reasonable environmental safeguards |
| 10 | 23 | Increased industrialization of rural areas |
| 11 | 21 | Whether waste disposal is OK on site |
| 11 | 21 | Can we afford to sacrifice prime ag. lands? |
| 13 | 17 | Problems resulting from condemnation |
| 14 | 16 | Irreversible uses of land |
| 15 | 15 | Preserve farm land for food production |
| 15 | 15 | Better tax returns to local government to dull local opposition |

GROUP 1

Land Use (continued)

| Rank | Points | |
|---|---|---|
| 17 | 14 | Destruction or conversion of ethnic, historical areas/sites |
| 18 | 13 | Will taxable land be lost? |
| 19 | 12 | Location in regards to demand center |
| 20 | 10 | Protect archeological sites |
| 20 | 10 | H.V. transmission lines cutting across agricultural lands |
| 22 | 7 | Protect existing homes and homesites |
| 23 | 4 | Arrogance of big business |

Final Ranking

| Rank | Points | |
|---|---|---|
| 1 | 40 | Effect on water supplies |
| 2 | 38 | Air pollution - visible - smoke, particulates |
| 3 | 35 | Air pollution - invisible - chemical, odor, radiation |
| 4 | 32 | Potential harmful/beneficial effects |
| 5 | 31 | Contamination of soil, water, vegetation effect on food cycle |
| 6 | 30 | Water pollution - vegetation and fish kills |
| 7 | 29 | Positive insurance of reasonable environmental safeguards |
| 8 | 28 | What kinds of growth do we want? |
| 9 | 24 | Impact and disruptions to people and communities |
| 10 | 20 | Solid waste disposal from the plant |
| 11 | 17 | Danger of microwave activity from H.V. transmission on cellular tissue and circulatory systems - human/animal |
| 11 | 17 | Removal of recreational and/or ag. land |
| 11 | 17 | Danger from any degree of radioactivity from any source associated with power plants |
| 11 | 17 | To be located in area of least disturbance to natural environment |
| 15 | 15 | Police state necessary to prevent sabotage |
| 15 | 15 | Education to local people of the need vs. the hazards |
| 17 | 13 | Effects on wildlife and domestic animals |
| 17 | 13 | Increased local property taxes required to support increased services |
| 17 | 13 | Increased industrialization of rural areas |
| 20 | 12 | Present taxes vs. new employment, need, economic impact to community |
| 21 | 10 | Need vs. dangers to the community |
| 22 | 8 | Regional recreational development vs. economic needs for power development |
| 23 | 6 | Effects on adjacent land |
| 24 | 5 | Effect on local population levels |
| 24 | 5 | Aesthetics |
| 26 | 3 | Job supply - during construction and operation, indirect effects |
| 26 | 3 | Special discount to reduce electric bill of consumers near plant |
| 26 | 3 | Local citizens have much less control over their lives |
| 29 | 0 | Effect on existing and future recreation areas |
| 29 | 0 | The assurance that the plant will be an attractive installation |
| 29 | 0 | Transportation needs |

GROUP 2

Biological and Physical

| Rank | Points | |
|---|---|---|
| 1 | 62 | Disposal of nuclear waste products |
| 2 | 59 | Safety (for local residents) |
| 3 | 39 | Availability of water |
| 4 | 37 | Geology of plant site and soil |
| 5 | 34 | Effects on animal and plant life |
| 6 | 33 | Human health (physical) |
| 7 | 29 | Water quality (cleanliness and temperature) |
| 8 | 22 | Spatial extent of pollution (effects) |
| 9 | 21 | Psychological effects on people of noise and lights |
| 10 | 19 | Population concentration (amount) |
| 10 | 19 | Effects on agriculture (food supply) |
| 12 | 14 | Fly-ash storage |
| 12 | 14 | Handling and storing of raw materials |
| 14 | 13 | Air pollution from coal-fired plants and controls |
| 15 | 11 | Safety of plant workers |
| 16 | 10 | Visual impact (plant) (lines) |
| 17 | 9 | "Land requirements" for coal |
| 17 | 9 | Effects of increased service facilities, transportation facilities for plant (roads) |
| 19 | 7 | Effects of related development |
| 20 | 6 | Water condensation (rel. to cooling tower) |
| 20 | 6 | Existing site condition (amount and type of pollution) |
| 22 | 4 | Land requirements for nuclear waste disposal |
| 22 | 4 | Safety requirements for transmission lines |
| 24 | 1 | Land requirements for tranmission lines |
| 35 | 0 | Soil conditions |
| 25 | 0 | Visual impact of transmission lines |
| 25 | 0 | Time span of biological & physical effects |
| 25 | 0 | Climate of site (i.e., inversion patterns) |

Economic and Social

| Rank | Points | |
|---|---|---|
| 1 | 59 | Inequitable tax redistribution |
| 2 | 53 | Public awareness of consequences of lack of electrical energy |
| 3 | 45 | Impact of work force (change in housing, schools, population of area, on social services) |

Economic and Social (continued)

| Rank | Points | |
|---|---|---|
| 4 | 41 | Public acceptance of need for plant |
| 5 | 32 | Effect on present area (recreation, groceries, business, etc.) |
| 6 | 30 | Sufficient support services; waste disposal, utility |
| 7 | 25 | Effect on land values |
| 8 | 21 | Effects on general tax rate (hidden costs) |
| 9 | 20 | Number of permanent employees |
| 9 | 20 | Effects on moves (culture) |
| 11 | 16 | Health costs |
| 11 | 16 | Lead time required to begin operation |
| 11 | 16 | Cost and availability anywhere of fuel chosen |
| 14 | 14 | Impact on utility consumer's bill |
| 15 | 13 | Power authority of regulatory agencies |
| 16 | 11 | Costs of waste disposal and storage |
| 17 | 10 | Loss of agricultural production (land) |
| 18 | 9 | Adequacy of insurance for population |
| 18 | 9 | Cost of pollution control and monitoring |
| 20 | 8 | Security of plant |
| 21 | 7 | Effects on food production |
| 22 | 6 | Impact on family unit |
| 23 | 5 | Effects on recreation in area |
| 23 | 5 | Local availability of fuel |
| 25 | 2 | Interpretation of E.I.S.'s |
| 26 | 1 | Costs of decommissioning |
| 27 | 0 | Available work force |

Land Use

| Rank | Points | |
|---|---|---|
| 1 | 74 | Removal of agricultural crop land |
| 2 | 36 | Impact on existing recreational sites |
| 2 | 36 | Generally positive effects on the community |
| 4 | 33 | Use or development of marginal land (higher land use) |
| 5 | 31 | Increased recreation (in cooling ponds, etc.) |
| 5 | 31 | Regional vs. local needs and values |
| 7 | 30 | Zoning of the affected area |
| 8 | 28 | Scenic areas |
| 9 | 25 | Land needed for waste disposal |
| 10 | 23 | Increased use of lands now in use |
| 10 | 23 | Which unit of government has power in siting decision |
| 12 | 18 | Amount of land used in fuel procurement |
| 13 | 16 | Area of impact/enery produced ratio |
| 14 | 15 | Possibility of land (site) reclamation |
| 15 | 12 | Interpretation of E.I.S. |
| 16 | 11 | Relative safety from long-term land contamination |
| 17 | 10 | Leased-back program of utility |
| 17 | 10 | Marshes and wetlands |
| 17 | 10 | Unique crops of area |
| 20 | 9 | Preservation of historic sites - cemeteries and landmarks |
| 21 | 8 | Insurance for land yield |
| 22 | 3 | Power of eminent domain |
| 23 | 1 | Relocation of like facilities and land |

Final Ranking

| Rank | Points | |
|---|---|---|
| 1 | 60 | Safety of local residents |
| 2 | 52 | Disposal of nuclear waste products |
| 3 | 46 | Education and information RE: energy |
| 4 | 40 | Removal of agricultural cropland |
| 5 | 38 | Inequitable tax redistribution |
| 6 | 37 | Availability of water |
| 6 | 37 | Public acceptance and opinion |
| 8 | 25 | Generally positive effects on the community |
| 9 | 22 | Geology and soils of plant site |
| 10 | 16 | Effects on human health |
| 11 | 15 | Effect on local economy |
| 12 | 13 | Effects on plant and animal life |
| 12 | 13 | Temporal and spatial extent of effects |
| 14 | 12 | Water quality (temperature and cleanliness) |
| 15 | 11 | Effects on general tax rate |
| 16 | 9 | Population concentration |
| 16 | 9 | Impact of change in work force |
| 18 | 8 | Use or development of marginal land |
| 19 | 7 | Effects on food supply |
| 20 | 6 | Number of permanent employees |
| 21 | 5 | Scenic areas |
| 22 | 4 | Effect on moves and culture |
| 22 | 4 | Regional vs. local needs and values |
| 24 | 2 | Effect on local land values |
| 24 | 2 | Sufficient support services |
| 26 | 1 | Impact on existing recreational sites |
| 26 | 1 | Zoning of the affected area |
| 28 | 0 | Increased recreation on the site |
| 25 | 0 | Land needed for waste disposal |
| 28 | 0 | Increased use of land now in use |
| 28 | 0 | Which unit of government has power in siting decision |

GROUP 3

Biological and Physical

| Rank | Points | |
|---|---|---|
| 1 | 68 | Supply of water adequate for all uses |
| 2 | 54 | Air quality |
| 3 | 48 | Adequate soil and bedrock conditions for nuclear |
| 4 | 46 | Chance of nuclear accident (including transport) |
| 5 | 38 | More factual data on biological effects |
| 6 | 37 | Radiation health effects |
| 7 | 36 | Traffic patterns for service to plant |
| 8 | 30 | Cost vs. benefit of all biological and physical concerns |
| 9 | 22 | Where radioactive waste stored |
| 10 | 20 | Environmental effects of not building plants |
| 11 | 19 | Comparison of radiation from coal, nuclear, geothermal and solar |
| 12 | 18 | Noise pollution in area of plant |

Biological and Physical (continued)

| Rank | Points | | Rank | Points | |
|---|---|---|---|---|---|
| 13 | 17 | Understanding of general radiation vs. power plant radiaion | 26 | 3 | Better understanding of cancer causing properties of plutonium |
| 14 | 16 | Minimal contamination of both groundwater and surface water | 26 | 3 | Sabotage of radioactive materials |
| 15 | 15 | Minimal impact on surrounding areas | 26 | 3 | Independent monitoring |
| 16 | 14 | Water table conditions for ash disposal | 29 | 2 | Fishing from thermal pollution |
| 17 | 12 | Leakage of nuclear wastes | 30 | 1 | Overall research on physical and biological effects |
| 17 | 12 | Rail availability | 31 | 0 | Fire hazard near nuclear plants |
| 17 | 12 | Available work force - minimize transportation difficulties | 31 | 0 | There is minimal effect on animal life |
| 17 | 12 | Properly understood monitoring methods (air and water) | 31 | 0 | Temperature of water leaving plant |
| 17 | 12 | What are the real problems with waste | 31 | 0 | Are power line poles more unsightly than other tall objects |
| 22 | 11 | Psychology of fear | 31 | 0 | Value of term 'pico curie' |
| 22 | 11 | Genetic problems from low level radiation | 31 | 0 | How much land needed |
| 22 | 11 | Power at risk of human health | 31 | 0 | Better growth of vegetation |
| 25 | 7 | Reconcentrating radiation in wildlife (food chain) | 31 | 0 | How are plants decommissioned |
| | | | 31 | 0 | Enough water during low-flow |

Economic and Social

| Rank | Points | | Rank | Points | |
|---|---|---|---|---|---|
| 1 | 51 | Increasing cost if more power not produced | 28 | 8 | Locate in industrial areas |
| 2 | 40 | Change tax bill to benefit local area | 28 | 8 | Milk contamination by radiation |
| 3 | 38 | Additional power need in 1980 | 30 | 7 | Cost of local community support |
| 4 | 32 | Acceptable cost-benefit ratio | 31 | 6 | Cost of decommissioning |
| 5 | 27 | Enough electrical supply for agriculture | 32 | 5 | Local zoning adequate |
| 6 | 25 | Locate near need for power | 32 | 5 | Concern over loss of freedom due to nuclear protection |
| 6 | 25 | Employment and adequate energy interdependence | 32 | 5 | Forced conservation relative to American freedoms |
| 8 | 24 | Responsible news reporting | 32 | 5 | Conservation vs. economic growth |
| 9 | 21 | Enough power to attract industy to area | 36 | 4 | Factual information reported by all media |
| 9 | 21 | Healthy economic growth vs. minimal economic growth | 37 | 4 | Distinguishing sources of radiation |
| 11 | 20 | Local community aiding expediting building of plant | 37 | 4 | Inadequate emergency evacuation plans |
| 12 | 18 | Energy affordable to all | 39 | 3 | Insufficient insurance protection |
| 12 | 18 | 2nd class status for America | 39 | 3 | Relative cost from each fuel source |
| 14 | 16 | Economical transportation of fuel and supplies | 39 | 3 | Added cost due to overlapping research |
| 15 | 15 | Total cost of nuclear vs. coal, including added nuclear needs | 39 | 3 | Better understanding of insurance coverage |
| 15 | 15 | Methods for evaluating between emotional and factural studies | 43 | 2 | Prime target in case of war |
| 15 | 15 | Agricultural concerns due to radiation | 43 | 2 | Limit of controls relative to cost |
| 18 | 13 | Priority for use of coal | 45 | 1 | Economics of holding environmental standards for coal plants |
| 19 | 12 | Income to local businesses | 45 | 1 | Prediction of future energy costs |
| 20 | 11 | Responsible use of 'eminent domain' | 47 | 0 | Near fuel supply |
| 20 | 11 | Moral justification of oil and gas use vs. nuclear (other uses nil) | 47 | 0 | Effect on school system |
| 22 | 10 | More work in area | 47 | 0 | Smaller coal plants rather than larger for transportation ease |
| 22 | 10 | Regional employment | 47 | 0 | Priority for use of oil |
| 22 | 10 | Moral issue of responsibility to next generations (nuclear waste) | 47 | 0 | Effect on tourism |
| 22 | 10 | Importance of community energy independence | 47 | 0 | Local economic effects of construction period |
| 26 | 9 | Effect on local taxes | 47 | 0 | Role of electricity in community support services (sanitation, etc.) |
| 26 | 9 | Local polarization | 47 | 0 | Concern over strip mining |

Land Use

| | | | | | |
|---|---|---|---|---|---|
| 1 | 67 | Cost vs. benefit for land use concerns | 9 | 25 | Maintain adjacent land desirability for other purposes |
| 2 | 55 | Power plant near major load for cogeneration | 11 | 24 | Fly ash disposal (and $SO_2$ sludge) |
| 3 | 54 | Ag. Land preservation | 12 | 16 | Existing use of area |
| 4 | 44 | Highest and best use of land | 12 | 16 | Use low population areas |
| 5 | 32 | Contamination of soil | 12 | 16 | Effect of lack of energy to agriculture |
| 6 | 31 | Aesthetic plant - including landscaping | 15 | 15 | Use of buffer zone for farming |
| 7 | 29 | Preservation of historical and archaeological sites | 15 | 15 | Avoid duplication of transmission line |
| 7 | 29 | Compatibility with future land use plan | 17 | 14 | Preservation of park lands |
| 9 | 25 | Local zoning should not supercede reg regional needs | 17 | 14 | Effect of new roads and railraods on land use |

Land Use (continued)

| Rank | Points | |
|---|---|---|
| 17 | 14 | Transmission lines along highways (off ag. land) |
| 20 | 10 | National vs. local needs |
| 20 | 10 | Underground transmission line |
| 20 | 10 | Minimize total land for plant |
| 23 | 8 | Site easily protected |
| 24 | 7 | No nuclear parks (holding waste at generation site) |
| 25 | 6 | Local zoning should supercede regional needs |
| 26 | 5 | Fog problems |
| 26 | 5 | Benefits of warm water - including purification |
| 28 | 3 | Are rural people more expendable |
| 29 | 2 | Smaller spread out coal plants |
| 30 | 1 | Use of scrubbers on coal plants |
| 31 | 0 | Precipitators for particulates |
| 32 | 0 | Hunting and fishing benefits around plant |

Final Ranking

| | | |
|---|---|---|
| 1 | 61 | Supply of water adequate for all uses |
| 2 | 40 | Air quality |
| 3 | 33 | Change tax bill to benefit local area |
| 4 | 29 | Adequate soil and bedrock conditions |
| 4 | 29 | Radiation health effects |
| 6 | 22 | Cost vs. benefit for all biological and physical concerns |
| 7 | 21 | Enough electricity supply to agriculture |
| 8 | 20 | Ag land preservation |
| 8 | 20 | Increasing cost if more power not produced |
| 10 | 19 | More factual data on biological effects |
| 11 | 18 | Cost vs. benefit for land use concerns |
| 11 | 18 | Power plant near major load for cogeneration |
| 13 | 16 | Chance of nuclear accident (including transportation) |
| 13 | 16 | Responsible news reporting |
| 15 | 15 | Where radioactive waste is stored |
| 15 | 15 | Locate near need for power |
| 17 | 14 | Traffic patterns for service to plant |
| 17 | 14 | Additional power need in 1980 |
| 17 | 14 | Contamination of soil |
| 20 | 12 | Healthy economic growth vs. minimal economic growth |
| 21 | 10 | Highest and best use of land |
| 21 | 10 | Local zoning should not supercede regional needs |
| 23 | 8 | Employment and adequate energy dependence |
| 24 | 7 | Acceptable cost/benefit ratio |
| 25 | 6 | Environmental effects of not building plants |
| 26 | 4 | Preservation of historic and archaeological sites |
| 26 | 4 | Maintain adjacent land desirability for other purposes |
| 28 | 0 | Enough power to attract industry to area |
| 28 | 0 | Compatibility with future land use plan |
| 28 | 0 | Aesthetic plant - including landscaping |

GROUP 4

Biological and Physical

| Rank | Points | |
|---|---|---|
| 1 | 55 | Air discharges should not be harmful to human health, vegetation, or animals |
| 2 | 46 | Adequate safeguards for the transportation and disposal of nuclear wastes |
| 3 | 45 | Stringent specifications and safety standards should be used for nuclear plants |
| 4 | 34 | Thermal pollution effects, both on air and water |
| 5 | 29 | More adequate knowledge about the limits of human exposure allowable to toxic substances emitted from the plant |
| 6 | 24 | Possibility for smoke to contain radioactive materials |
| 7 | 18 | Many transmission lines within a particular transmission corridor preferred to multiple corridors |
| 7 | 18 | Potential for decreased water quality due to discharges from the plant |
| 7 | 18 | Danger of explosion at nuclear site - what precautions are taken? |
| 10 | 17 | How do we best address the many tradeoffs connected with these concerns |
| 11 | 15 | Smoke emitted from a coal-fired power plant |
| 11 | 15 | Reduction of recreational activities connected with water (boating, swimming, etc.) |
| 13 | 14 | Adequate safety precautions for coal plants |
| 13 | 14 | Reduction in water table due to use of water by the plant |
| 15 | 12 | Safety questions regarding hydro power (dam failure, etc.) |
| 16 | 11 | Transportation of fuel to the site |
| 16 | 11 | Potential harm to fishing in streams and rivers |
| 18 | 10 | Destruction of natural areas resulting from coal mining in the west |
| 18 | 10 | Using hydro power would increase water supply in an area |
| 20 | 8 | Adequate water supply from the Wisconsin River for use by the plant |
| 21 | 7 | Soil type most desirable for construction of a plant - is there a most desirable soil type (subsoil included) |
| 22 | 3 | Noise pollution |
| 23 | 1 | Coal dust due to emptying coal cars |

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### Economic and Social

| Rank | Points | |
|---|---|---|
| 1 | 48 | Need for adequate power to keep factories and schools operating |
| 2 | 33 | Are the real facts presented in the pro and con debate on future plants |
| 3 | 31 | Taxation of the utility should be adequate to compensate the local governmental units for the increased services (roads, police, schools, etc.) necessary during construction of a plant |
| 4 | 29 | Desire of people in a community for the siting of a plant in that community |
| 5 | 26 | Is one large plant better or worse than many small plants |
| 6 | 23 | Adequate plans should be developed, prior to construction, between utility and local municipality and business community to provide necessary services. |
| 7 | 22 | Safety of the plant |
| 8 | 21 | Potential for social disruption if adequate power is not provided in a timely fashion |
| 9 | 19 | Cost of electric energy, particularly as it affects those on a fixed income or those with particular health needs. |
| 10 | 16 | Potential for urbanization of rural areas |
| 11 | 15 | Put plants as close as possible to the use area, reducing costs, etc. |
| 11 | 15 | Differences between actual future power needs and utility projections |
| 13 | 13 | Would a nuclear plant deter people from moving into an area |
| 14 | 12 | Displacement of population from the site |
| 14 | 12 | Increased taxes due to influx of population when a plant is built |
| 16 | 11 | Changes in property values in a community near the power plant |
| 17 | 10 | Construction of new plant at sites where the additional power could be supplied by upgrading existing units resulting in higher costs to the consumer |
| 17 | 10 | What kind of training will be necessary for plant employees, as well as salary scale. Will the employees be drawn from the local area |
| 19 | 8 | Is the power to be used in the area or will it be sent to other areas |
| 19 | 8 | Storage and transportation of wastes |
| 19 | 8 | Industries, by conserving fossil fuels, will increase their own electrical energy demands |
| 23 | 7 | How many people will be employed by the site |
| 22 | 7 | Would a new plant attract more people to an area |
| 22 | 7 | Reduce governmental restrictions and allow private enterprise more freedom |
| 25 | 6 | Electric rates should reflect the true cost of furnishing service |
| 25 | 6 | Energy sources available to a community, should there be a high dependence on only a few sources |
| 27 | 5 | Security near nuclear plant |
| 28 | 3 | Increased revenue and business provided by additional employees |
| 29 | 2 | Would additional people employed at plant or changes in life-style cut down the existing recreational activities |
| 29 | 2 | Concern about adequate insurance coverage to cover any potential disaster |
| 31 | 1 | Annual efficiency of a power plant |
| 31 | 1 | What type of zoning will be used in the area surrounding a plant |
| 33 | 0 | Will there be more power or less during construction in an area |

### Land Use

| Rank | Points | |
|---|---|---|
| 1 | 53 | Sharing of information between communities nationwide with similar power plant siting experiences |
| 2 | 51 | Locate on lands of lower value, avoid lands of historic, archaeological or natural beauty value |
| 3 | 46 | Avoid agricultural land |
| 4 | 34 | Recognition of future growth areas in region |
| 5 | 26 | Are there alternatives to transmission lines in long distance transport of large amounts of power |
| 5 | 26 | Adequate protection against pollution of land or rivers |
| 7 | 24 | Transmission lines should be placed to not waste good agricultural land and to allow farmers to farm around them |
| 8 | 22 | Utilities should utilize the property they own before siting plants on land they do not own |
| 9 | 21 | Not to destroy or reduce the scenic quality of lake, river, or stream frontage areas |
| 9 | 21 | How to arrive at the values of land and buildings to compensate displaced owners |
| 11 | 14 | Cogeneration of electricity and steam |
| 11 | 14 | Increased population will mean increased solid waste and sewage disposal problems |
| 11 | 14 | Will the site be landscaped so as to blend into the area |
| 14 | 12 | Preserve the existing sites of historic or archaeological significance |
| 15 | 11 | Fly ash disposal areas should have the same restrictions as DNR presently uses for solid waste disposal areas |
| 16 | 9 | Is there a preference for soil type (including subsoil) for plant location |
| 17 | 8 | Use of waste heat water for heating homes or irrigation of crops |
| 17 | 8 | Compensation to property owners whose lands suffer a reduction in value |
| 19 | 6 | Avoid potential hazard or danger to established local airports in placement of plants |
| 20 | 5 | The amount of land needed for plants and transmission lines |
| 21 | 4 | Urbanization of rural area |
| 21 | 4 | What procedure will be used to change the zoning designation of a potential site if necessary |
| 23 | 3 | Need for roads would mean more land taken |

### Land Use (continued)

| Rank | Points | |
|---|---|---|
| 23 | 3 | Avoid location of transmission lines near highways |
| 25 | 0 | What consideration is given to the availability of basic building material (sand, gravel, stone, etc.) in the area |

### Final Ranking

| Rank | Points | |
|---|---|---|
| 1 | 53 | Air discharges should not be harmful to human health, vegetation, or animals |
| 2 | 43 | Need for adequate power to keep factories and schools operating |
| 3 | 41 | Locate on lands of lower value, avoid lands of historic, archaeological or natural beauty value |
| 4 | 39 | Sharing of information between communities nationwide with similar power plant siting experiences |
| 5 | 31 | Stringent specifications and safety standards should be used for nuclear plants |
| 6 | 30 | Avoid agricultural land |
| 7 | 24 | Are the real facts presented in the pro and con debate on future plants |
| 8 | 17 | Is one large plant better or worse than many small plants |
| 9 | 14 | Safety of the plant |
| 9 | 14 | Adequate protection against pollution of land or rivers |
| 11 | 12 | Cost of electric energy, particularly as it affects those on a fixed income or those with particular health needs |
| 12 | 11 | How to arrive at the values of land and buildings to compensate displaced owners |
| 13 | 10 | Thermal pollution effects, both on air and water |
| 13 | 10 | Adequate safety precautions for coal plants |
| 13 | 10 | Recognition of future growth areas in region |
| 16 | 9 | Adequate safe-guards for the transportation and disposal of nuclear wastes |
| 16 | 9 | How do we best address the many trade-offs connected with these concerns |
| 16 | 9 | Adequate plans should be developed, prior to construction, between utility and local municipality and business community to provide necessary services |
| 16 | 9 | Differences between actual future power needs and utility projections |
| 20 | 8 | Desire of people in a community for the siting of a plant in that community |
| 21 | 7 | Are there alternatives to transmission lines in long distance transport of large amounts of power |
| 22 | 6 | Utilities should utilize the property they own before siting plants on land they do not own |
| 23 | 5 | Taxation of the utility should be adequate to compensate the local governmental units for the increased services (roads, police, schools, etc.) necessary during construction of a plant |
| 23 | 5 | Transmission lines should be placed to not waste good agricultural land and to allow farmers to farm around them. |
| 25 | 3 | More adequate knowledge about the limits of human exposure allowable to toxic substances emitted from the plant |
| 25 | 3 | Potential for social disruption if adequate power is not provided in a timely fashion |
| 25 | 3 | Displacement of population from the site |
| 28 | 0 | Possibility for smoke to contain radioactive materials |
| 28 | 0 | Many transmission lines within a particular transmssion corridor preferred to multiple corridors |
| 28 | 0 | Potential for decreased water quality due to discharges from the plant |
| 28 | 0 | Danger of explosion at nuclear site - what precautions are taken |
| 28 | 0 | Potential for urbanization of rural areas |
| 28 | 0 | Not to destroy or reduce the scenic quality of lake, river, or stream frontage areas |

## GROUP 5

### Biological and Physical

| Rank | Points | |
|---|---|---|
| 1 | 45 | Health effects on food chain (aquatic and land) |
| 2 | 40 | Air pollution (fly ash, $SO_2$) |
| 3 | 37 | Water contamination |
| 4 | 33 | Radioactive and toxic emissions from nuclear power plants |
| 4 | 33 | Disposal, transportation, etc., for nuclear waste |
| 6 | 27 | Soil contamination |
| 7 | 25 | Effects on future generations: genetic and natural resource depletion |
| 7 | 25 | Health effects on people |
| 7 | 25 | Solid waste disposal problems |
| 10 | 24 | Is the nuclear plant safe |
| 12 | 20 | Geology of the area |
| 12 | 20 | Transmission line effects - land, plants, animals, people |
| 14 | 19 | Cleanliness (soot) |
| 15 | 17 | Noise |
| 16 | 16 | Effect of groundwater table depression |
| 17 | 15 | Water and food in Wisconsin (area devoted to...) |
| 18 | 13 | Effects on remnant wildlife populations (endangered species, etc.) |
| 19 | 12 | Thermal pollution |
| 20 | 11 | Physical effects of increasing transportation in area (coal, workers, etc.) |
| 21 | 10 | Humans as storers of radioactive wastes |
| 22 | 9 | Culpability (victims) public health |
| 22 | 9 | Effects of misting from cooling towers on health, safety, welfare |
| 24 | 8 | Displacement of ag lands |
| 24 | 8 | Cracks in rock formations (nuclear effects) |

Biological and Physical (continued)

| Rank | Points | |
|---|---|---|
| 24 | 8 | Location near accident prone areas (e.g., airports) |
| 24 | 8 | Population density |
| 28 | 7 | Scenic effects |
| 28 | 7 | Impacts on domestic animals |
| 28 | 7 | Utilization of waste heat |
| 28 | 7 | Priorities of water use |
| 28 | 7 | Public health services for contingencies |
| 33 | 6 | Impact on specific area industries: potato, cranberry and dairy |
| 33 | 6 | Special effects on risk persons - need for research |
| 35 | 5 | Woodlots |
| 36 | 3 | Water volume |
| 36 | 3 | Ecologically fragile areas (e.g., wetlands) |
| 38 | 2 | Effect of drought - who gets water |
| 39 | 0 | Emotional effects on people |
| 39 | 0 | Radiation effects on workers - (mining through everything) |
| 39 | 0 | Effect on drinking water |
| 39 | 0 | Compensation for victims |

Economical and Social

| Rank | Points | |
|---|---|---|
| 1 | 70 | Implementation of comprehensive energy conservation program |
| 2 | 42 | Economic and social benefits of more widely dispersed smaller power plants using indigenous fuel sources |
| 3 | 39 | Insure adequate energy for reasonable economic growth |
| 4 | 34 | More money into solar and other alternative energy sources |
| 5 | 32 | Don't like new tax law (local government no longer benefits. Need economic incentive) |
| 6 | 31 | Effects on health (physical and mental) |
| 7 | 30 | Encourage municipal plants - moratorium on large private ones |
| 8 | 26 | Lowest cost generation per kw |
| 9 | 23 | Need tax and/or incentives for alternative energy sources (private sector) |
| 10 | 22 | Nuclear power plant security costs (will users pay?) |
| 10 | 22 | Benefits of using waste heat |
| 12 | 21 | Cost of evaluation and resettlement of people irradiated and land decontamination costs |
| 14 | 20 | Striving to achieve energy independence (US and Wis) |
| 15 | 19 | Increased cost of public services (police, fire, schools, etc.) |
| 16 | 18 | Provide for employment (short/long term) |
| 17 | 15 | Why are rural areas expendable? |
| 17 | 13 | Effect on housing (temp and perm) availability, etc. |
| 17 | 13 | Need more global thinking (air, etc., is worldwide) |
| 20 | 11 | Cost of transportation: fuel in and wastes out |
| 20 | 11 | Public information availability and information for public interest research |
| 21 | 10 | Economics (cost) of pollution control devices (scrubbers, etc.) |
| 21 | 10 | Individual responsibility for energy use and generation |
| 21 | 10 | Adequate insurance for nuclear plants (not the plant - but people) |
| 21 | 10 | Future generations insurance (nuclear) |
| 26 | 9 | Improve area tax base |
| 26 | 9 | Willingness of area to adopt and enforce air and water quality controls |
| 26 | 9 | Occupational and safety admin. (OSHA) doesn't cover nuclear ques |
| 29 | 8 | Land reclamation |
| 30 | 5 | Effects on roads, highways |
| 30 | 5 | Effects of closing businesses in area (compensation) |
| 30 | 5 | Employment of getting raw materials (miners, truckers, RR, etc.) |
| 30 | 5 | Economic ceiling on growth |
| 30 | 5 | Not many sites available for nuclear--coal, etc., can be sited in many more places |
| 35 | 4 | Decrease in area land values |
| 36 | 3 | Effects on shopping and recreation facilities |
| 37 | 1 | Fuel supply for nuclear plants (going into plutonium economy) |
| 38 | 0 | Importing construction workers from outside area (transient workers) |
| 38 | 0 | Compensation for displaced individuals and localities |
| 38 | 0 | Loss of food from using ag land |

Land Use

| Rank | Points | |
|---|---|---|
| 1 | 57 | Preservation ag and wetlands |
| 2 | 48 | People forced to sell land |
| 3 | 39 | Synergistic effects of thermal chemical and radioactive pollution |
| 3 | 39 | Power plants sited where needed - avoiding transmission lines |
| 5 | 37 | Impact of lowering water tables or surrounding land uses |
| 6 | 36 | Does plant siting fit local zoning/land use plans |
| 7 | 31 | Periodic review of land use policies |
| 8 | 27 | Location of plant away from prime amenity areas (wildlife...) |
| 10 | 24 | Ag land contamination and reclamation |
| 11 | 22 | Land development controls (plant and additional development) |
| 11 | 22 | More research on undergrounding transmission lines |
| 13 | 21 | Decommissioning of power plants - how long does land remain unusable, including use of land for waste storage |
| 14 | 20 | (Rural) country - too much people feed produced cities - too many people. Therefore, can't have nuclear power plants |
| 15 | 19 | Land is sacred trust for future generations. |
| 16 | 16 | Condemnation of renewable resources (wood, ag land, etc.) |

Land Use (continued)

| Rank | Points | |
|---|---|---|
| 17 | 14 | Land around plant should be used for public benefit (e.g. parks) |
| 17 | 14 | Use of public lands for power plants |
| 19 | 11 | Mineral value of the land used for siting (cemeteries and small burial grounds) |
| 20 | 7 | Historical and archaeological sites |
| 21 | 6 | Housing impacts-mobile home park proliferation |
| 22 | 2 | Property value fluctuations (up/down) |
| 23 | 0 | Land consumption of nuclear parks |

Final Ranking

| Rank | Points | |
|---|---|---|
| 1 | 70 | Implementation of comprehensive energy conservation program |
| 2 | 62 | Health effects on food chain (aquatic and land) |
| 3 | 39 | More money into solar and other |
| 4 | 38 | Effects on future generations: genetic and natural resource depletion |
| 4 | 38 | Preservation of ag land and wetlands |
| 6 | 22 | Solid waste disposal problems |
| 7 | 20 | Nuclear power plant security costs (will users pay?) Inc. loss of civil liberties |
| 9 | 19 | Radioactive and toxic emissions from nuclear power plants |
| 10 | 17 | Air pollution (fly ash, $SO_2$) |
| 10 | 17 | Synergistic effects of thermal, chemical and radioactive |
| 16 | 16 | Does plant siting fit local zoning/land use plans? |
| 13 | 13 | Insure adequate energy for reasonable economic growth |
| 13 | 13 | Power plants sited where needed - avoiding transmission lines |
| 15 | 12 | Groundwater contamination |
| 15 | 12 | Economic and social benefits of more widely dispersed smaller power plants using indigenous fuel sources |
| 17 | 8 | Don't like new tax law (local government no longer benefits - need economic incentive) |
| 17 | 8 | Periodic review of land use policies |
| 19 | 7 | Is the nuclear power plant safe |
| 20 | 6 | Impact of lowering water tables on surrounding land uses |
| 20 | 6 | People forced to sell land |
| 22 | 5 | Effects on health (physical and mental) |
| 22 | 5 | Disposal, transportation, etc., for nuclear wastes |
| 24 | 4 | Location of plants away from prime amenity areas (wildlife, etc.) |
| 24 | 4 | Impacts of long distance, high voltage transmission lines |
| 24 | 4 | Ag land contamination and reclamation |
| 27 | 3 | Encourage municipal plants-moratorium on large, private ones |
| 28 | 2 | Lowest cost generation per kw |
| 29 | 1 | Soil contamination |
| 30 | 0 | Need tax and/or incentives for alternative energy sources (private sector) |
| 30 | 0 | Benefits of using waste heat |
| 30 | 0 | Health effects on people |

GROUP 6

Biological and Physical

| Rank | Points | |
|---|---|---|
| 1 | 27 | Particulate emissions |
| 2 | 43 | River water and groundwater draw down its effect on water quality |
| 3 | 42 | Residual waste disposal |
| 4 | 37 | Water contamination of flowage waste water enters |
| 5 | 29 | Health effects from electromagnetic radiation from transmission lines |
| 5 | 29 | Size of area needed for power plant |
| 7 | 24 | Effects on natural vegetation |
| 8 | 23 | Need for more energy |
| 8 | 23 | Proximity to urban centers |
| 10 | 22 | If power plant fails, danger to the public |
| 10 | 22 | Displacement of business or perople |
| 12 | 19 | Removal of fly ash for stack gas |
| 12 | 19 | Relation to prevailing wind direction |
| 12 | 19 | Sulfur dioxide emissions and nitrous oxides |
| 15 | 18 | Concentration in the food chain |
| 16 | 15 | Economic effect on various agricultural products produced. Will local crop values decline |
| 17 | 14 | Loss of wetlands |
| 18 | 12 | Preservation of natural resources by power plant |
| 19 | 11 | Impact on aquatic life by temperature of discharging water |
| 19 | 11 | Noise - by plant, truck, etc. |
| 19 | 11 | Noxious odors |
| 22 | 9 | Accurate pre-construction monitoring - base line studies |
| 22 | 9 | Amount of food products increase due to electricity available for irrigation |
| 24 | 8 | Erosion of soil during construction |
| 24 | 8 | Loss of unique areas |
| 24 | 8 | Destruction of critical wildlife habitat |
| 27 | 7 | Impact of spraying vegetation under power lines |
| 27 | 7 | Impact of obtaining fuel |
| 27 | 7 | Impact of emergency evacuation plans |
| 30 | 5 | Increase of aquatic life |
| 31 | 2 | Impact on crime rate |
| 31 | 2 | Relocation of residents who will move if a nuclear plant is sited in an area |
| 33 | 1 | Impact on tourism |
| 33 | 1 | Loss of scenic value |
| 35 | 0 | Health effects on those most prone to low level radiation |

Economic and Social

| Rank | Points | |
|---|---|---|
| 1 | 47 | Number of local people employed |
| 2 | 43 | Cost of providing public services |
| 2 | 43 | Impact on tax base, tax sharing |
| 4 | 38 | Need for energy now |
| 5 | 35 | Hazards to health of local residents |
| 6 | 29 | Impact of cost of energy at consumer end |
| 7 | 28 | Who gets the energy |
| 8 | 14 | Insurance protection -- who is liable for disaster |
| 8 | 14 | Trade off between power plants and paper mills |
| 8 | 14 | Cost of plant in relation to amount of energy produced |
| 11 | 12 | New manufacturing moving into local area |
| 11 | 12 | Decrease in social programs because of stronger economic base |
| 13 | 11 | Jobs increased |
| 13 | 11 | Disruption of community social order due to influx of new residents from construction |
| 15 | 10 | Concern with overregulation by agencies of local residents and of power plant |
| 15 | 10 | What happens after the plant has finished operation |
| 17 | 9 | Relocation of residents who do not wish to live near facility |
| 17 | 9 | Number of new people moving into area for operation of the plant |
| 19 | 7 | Ecomomic effect on current energy providers |
| 19 | 7 | Economic effect after construction workers leave |
| 21 | 6 | Competition for capital investment dollars |
| 22 | 5 | Tourism as the result of the plant |
| 22 | 5 | Federal protection force |
| 24 | 4 | Psychological aspect of people having land taken by power plant |
| 24 | 4 | Assisting in maintenance of present standard of living |
| 26 | 0 | Impact on recreation |

Land Use

| Rank | Points | |
|---|---|---|
| 1 | 50 | New industry as a result of more power |
| 2 | 36 | Loss of prime agricultural land |
| 3 | 34 | Groundwater might be polluted by ash pit - domestic wells will be contaminated precluding residential use of the land |
| 4 | 33 | Change in entire land use patterns |
| 5 | 31 | Permanent encasement of nuclear power plant after its life is finished |
| 5 | 31 | Can land be used for radioactive waste disposal. |
| 7 | 29 | Effect on local land values |
| 8 | 28 | Using land for transmission lines - use existing corridors |
| 9 | 26 | Trailer courts, poor housing, as a result of construction boom |
| 10 | 21 | Power plants are a good use of the land |
| 11 | 20 | Increase in agricultural land use caused by increased availabity of power |
| 11 | 20 | Use of land for new railroads |
| 13 | 19 | Federal or state restrictions on residential use of land near nuclear facilities |
| 14 | 15 | Protection of wetlands |
| 14 | 15 | Loss of recreational areas |
| 16 | 14 | Need for new roads |
| 17 | 13 | Loss of land for future business use |
| 18 | 11 | Amount of land utilities own now, or will possibly own. Concern with large land holdings |
| 18 | 11 | Should the site be used as a solar energy site |
| 20 | 9 | Creation of new recreation sites |
| 21 | 7 | Need for land use regulation, where none exists |
| 21 | 7 | Use of area after life of coal-fired power plant is finished |
| 23 | 6 | Do engineers know what they are talking about |
| 23 | 6 | Will there be a change in the geographic character of the land |
| 25 | 3 | Appearance of the power plant - how does it affect the scenery |

Final Ranking

| Rank | Points | |
|---|---|---|
| 1 | 54 | Need for more electrical energy now |
| 2 | 36 | Radioactive waste disposal |
| 3 | 35 | Health hazards to the general public |
| 4 | 34 | River water and groundwater draw down |
| 5 | 33 | Particulate emission |
| 6 | 32 | Who gets the energy |
| 7 | 23 | Impact on tax base - is the tax-sharing system fair |
| 8 | 21 | Cost of providing public service |
| 8 | 21 | Groundwater be polluted by ash pits - impact on domestic wells |
| 10 | 19 | Number of local people employed |
| 10 | 19 | Water contamination of flowage that surface water enters |
| 12 | 17 | New industry as a result of more power |
| 12 | 17 | Effect on local land values |
| 14 | 15 | If power plant fails, danger to population |
| 14 | 15 | Impact of cost of energy at consumer's end |
| 16 | 13 | Size of area needed for power plant |
| 17 | 12 | Loss of prime agricultural land |
| 17 | 12 | Effect on natural vegetation |
| 19 | 10 | Displacement of people or business |
| 19 | 10 | Permanent encasement of nuclear power plant after its life is finished |
| 19 | 10 | Trailer courts, housing as a result of construction |

# APPENDIX E

## SHEBOYGAN WORKSHOP

### GROUP PARTICIPANTS

Group 1

Betty Kuplic
Dave Sprehn
Lawrence Baer
Fred W. Meifert
Manning W. Kilton
Kenneth Turba
William C. Nickel
Joe Hutchison

Leader: Jill Randall

Group 2

Theodore J. Mosch
John G. Fax
George Wennerlyn
Bob Levin
Elizabeth Jacobson
Charlotte A. Testwuide
Katie Schuette
Bruce Loppnow
Tom Eisele

Leader: Steve Berkowitz

Group 3

E. K. Born
George Gruber
William Roehl
Stan Jerabek
Francis J. Bouda
Carol Wieland
Paul Schultz
Mark Leider

Leader: Sally Jenkins

Group 4

Joy Shaw
Doris Jerger
L. N. Mathieu
Alan H. Gartman
Edgar F. Koeser
James A. Derbique
Clarence Kwekkeboom
Roland Schomberg

Leader: Bruce Murray

Group 5

Gordon W. Heffernan
Paul A. Mullins
Peter W. Reichelsdorfer
Nancy Z. Schreiber
James Gilligan
Arden Koehler
Harold Petrick
Carl E. Erbstoeszer

Leader: Elin Quigley

## GROUP 1

### Biological and Physical

| Rank | Points | |
|---|---|---|
| 1 | 51 | Health concerns - cumulative radiation - cancer, and effect of other toxic materials, $SO_2$ |
| 2 | 34 | Need for plant should be determined |
| 3 | 31 | Increase the energy efficiency of plants, thereby decreasing environmental effects |
| 4 | 28 | Effects of increased radiation in immediate area |
| 5 | 26 | Adequate supply of water |
| 6 | 24 | Effects of radiation in agricultural products |
| 7 | 23 | Regional maintenance of water quality - cumulative effects on several sites |
| 8 | 22 | Type of land used - excellent farmland or wasteland |
| 9 | 19 | Temporary storage of waste materials in water and leakage of radioactive waste into water |
| 10 | 14 | Man-made alterations of local climate - effects of cooling towers and ponds - fogs |
| 10 | 14 | Density of population in area and in relation to distribution of energy |
| 10 | 14 | Long term economic effects on townships of plant construction and operation |
| 13 | 11 | Availability of good transportation. Put in area with existing roads |
| 13 | 11 | Impact of cooling water on aquatic life in general positive or negative |
| 15 | 10 | Storage of nuclear wastes |
| 15 | 10 | Use presently owned sites for experimentation with alternative (less environment harmful) energy production methods |
| 17 | 8 | Availability of type of fuel used in the area |
| 18 | 6 | Use areas that will affect wildlife habitat the least |
| 18 | 6 | Market for product (electricity) |
| 18 | 6 | Use of high-sulphur coal in plants |
| 18 | 6 | Should utilize by-products |
| 22 | 5 | Recreational and historical values of shoreline properties |
| 23 | 3 | Changes in lake temperature |
| 24 | 2 | People displacement - off the site |
| 24 | 2 | Effect of weather (temp.) on water temperature w/relation to cooling requirements |
| 24 | 2 | Discouragement of residential and business development in area |
| 27 | 1 | Wildlife leaving the area becasue of unhealthy conditions |
| 28 | 0 | Change in fishing quality - positive or negative |

### Economic and Social

| Rank | Points | |
|---|---|---|
| 1 | 55 | Consideration of future and worldwide energy needs for many generations |
| 2 | 54 | We need more energy conservation and education program on individual basis |
| 3 | 25 | Regulatory atmosphere of agencies - time and procedures |
| 3 | 25 | Special government costs related to transportation and safety |
| 5 | 24 | Effects on existing economic and social structure of large land acquisition |
| 6 | 20 | Justification for power plant on basis of 3rd party projections of consumer demand |
| 7 | 19 | Loss of agricultural land |
| 7 | 19 | Lower cost of power (electric) for residential use |
| 7 | 19 | Social and environmentally acceptable deep underground storage sites |
| 10 | 15 | Cost and availability of uranium |
| 11 | 14 | Interference with ecocycle |
| 12 | 13 | Closeness of plant to energy market (biggest percent of market) |
| 13 | 12 | Financial benefit or expense to community |
| 13 | 12 | Effect on employment in area |
| 15 | 11 | Effects on social and economic life of community of disputable facility |
| 16 | 10 | Balance between utility tax structure & environmental concerns |
| 17 | 9 | Power line right-of-way alternatives possible? (burial) |
| 17 | 9 | Steady employment and stabilizing economy of area |
| 17 | 9 | National economic worth of the plant vs. unaltered site |
| 20 | 8 | Discouragement of residential and business development |
| 20 | 8 | Temporary alteration of housing needs and costs - during construction |
| 20 | 8 | Loss of business for housing contractors after plant construction (safety fears) |
| 20 | 8 | Be sure to have enough power for the area |
| 20 | 8 | Increased area income through construction and operation, bolsters local economy |
| 25 | 7 | Better rate for industry in area |
| 26 | 5 | Decrease in value of farmland due to radiation |
| 26 | 5 | Changes in community style of living |
| 28 | 4 | Decommissioning of nuclear power plant - cost and responsibility |
| 29 | 2 | Possibility of tax benefits to the area |
| 29 | 2 | Effects on wildlife (hunting and fishing) |
| 31 | 1 | Nuclear safety features - adequate or excessive |
| 31 | 1 | Improved recreation facilities |
| 31 | 1 | Change in physical layout of area (streets and parks) |
| 34 | 0 | Active life of power plants. What is it? |
| 34 | 0 | Inflationary impact of higher-salaried construction workers in rural area |
| 34 | 0 | Loss of recreational and historical shoreline property |
| 34 | 0 | Loss of public access to shorelines |

Land Use

| Rank | Points | |
|---|---|---|
| 1 | 47 | Conservation of existing resources |
| 2 | 37 | Earlier citizen involvement in land use issues, siting and licensing |
| 3 | 36 | More emphasis on solar energy |
| 4 | 32 | Minimum use of the highest quality ag land |
| 5 | 29 | Maximize power output from each plant (fewer plants) |
| 6 | 28 | Build plants on poorest quality land possible |
| 6 | 28 | Utilization of waste products for fuel |
| 8 | 26 | Need for regional plan first - before selection of individual sites |
| 9 | 21 | Concern over concentration of plants around Lake Michigan |
| 10 | 19 | Security, terrorism, sabotage |
| 11 | 16 | Emphasis on use of fuel cells (for energy which solar couldn't provide) |
| 12 | 15 | All property of utility should be used (timber or crops) |
| 13 | 11 | Exercise soil and water conservation |
| 13 | 11 | Scenic and land use impacts of transmission lines |
| 15 | 10 | Effects on value of farmland |
| 15 | 10 | Educating lay people quickly (spread technical expertise) |
| 17 | 8 | Radiation to farmland and farm animals |
| 18 | 7 | Consideration of land-use problems for support facilities and activities |
| 18 | 7 | Encourage public relations between power company and area residents |
| 20 | 6 | Rate payers shouldn't have to absorb costs of siting changes and liability insurance |
| 20 | 6 | Institution of "Town Hall" |
| 20 | 6 | Keep plants least visible |
| 20 | 6 | Plant workers - exposure to radiation |
| 20 | 6 | Storage of wastes from other plants and areas |
| 25 | 5 | Effects of radiation on transient workers (repairmen) |
| 26 | 4 | Should locate plant in forest areas |
| 27 | 2 | Protection of wildlife on plant property |
| 28 | 1 | Architecture should complement area |
| 20 | 0 | Prevention of change of site alter approval |
| 29 | 0 | Zoning opportunity (surrounding area could be limited industry) |
| 29 | 0 | Use of plant land for educational purposes (tours, etc.) |
| 29 | 0 | Location of market |

Final Ranking

| Rank | Points | |
|---|---|---|
| 1 | 52 | Health effects - i.e., of cumulative radiation and effects of other toxic materials |
| 2 | 38 | Conservation of existing resources |
| 3 | 35 | More conservation measures and educational programs |
| 4 | 31 | Consideration of future and worldwide energy needs - for many generations |
| 5 | 25 | Minimum use of highest quality agricultural land |
| 6 | 22 | Increase the energy efficiency of plants - thereby decreasing the environmental effects |
| 6 | 22 | Adequate supply of water |
| 6 | 22 | More emphasis on solar energy |
| 9 | 20 | Type of land used - excellent farmland or wasteland |
| 9 | 20 | Earlier citizen involvement in land use issues in siting and licensing |
| 9 | 20 | Maximize power output from each plant - fewer plants |
| 12 | 19 | Temporary storage of waste materials in water and leakage of radioactive wastes into water |
| 13 | 17 | Utilization of waste products from area |
| 13 | 17 | The need for plant should be determined |
| 15 | 14 | Loss of agricultural land |
| 16 | 11 | Regional maintenance of water quality - cumulative effects of several sites |
| 17 | 10 | Need for regional plant first before selection of individual sites |
| 18 | 7 | Man-made alterations of local climate, effects of cooling towers and ponds - fogs |
| 18 | 7 | Need justification for power plant on the basis of 3rd party projections of consumer demand |
| 20 | 6 | Socially and environmentally acceptable deep underground storage sites |
| 21 | 5 | Effects of increased radiation in the immediate area |
| 21 | 5 | Cost and availability of uranium |
| 23 | 4 | Build plants on poorest quality land |
| 23 | 4 | Regulatory atmosphere of agencies - costs, time, and procedures |
| 25 | 3 | Density of population in area in relation to distribution of energy |
| 25 | 3 | Special government costs related to transportation and public safety |
| 27 | 2 | Security - terrorism and sabotage |
| 28 | 1 | Effects on existing economic and social structure of large land acquisition |
| 29 | 0 | Effects of radiation on agriculture production |
| 29 | 0 | Long-term economic effects on townships of plant construction and operation |
| 29 | 0 | Lower cost of power (electric) for residential use |
| 29 | 0 | Concern over concentration of plants on Lake Michigan |

GROUP 2

Biological and Physical

| Rank | Points | |
|---|---|---|
| 1 | 47 | Disposal of nuclear and coal wastes |
| 2 | 33 | Depletion of agriculture used for land |
| 3 | 31 | Radiation exposure to humans and the ecosystem and food |
| 3 | 31 | Change in air quality as a result of the addition, relative to present air quality |
| 5 | 30 | Preservation of natural areas |

Biological and Physical (continued)

| Rank | Points | |
|---|---|---|
| 6 | 29 | Maintaining and improving the integrity of the Great Lakes |
| 7 | 21 | Effect on aquatic life, plants, fish, etc. |
| 8 | 20 | Local climate patterns (wind, humidity, temperature) |
| 9 | 18 | Preservation of wetlands |
| 10 | 16 | Soil suitability for agriculture |
| 10 | 16 | Interference with wildlife and botanical habitation, especially if near the mouth of a creek or river |
| 10 | 16 | Effective control and use of heat generated |
| 13 | 13 | Water quantity availability for cooling |
| 13 | 13 | Preservation of unique geologic features like dunes, moraines |
| 15 | 12 | Ability of water body to disperse heat |
| 15 | 12 | Possible depletion of well water in the area of the site |
| 15 | 12 | Supply of pure drinking water |
| 18 | 11 | Carbon dioxide concentrations in the atmosphere |
| 19 | 10 | Safety of any power source |
| 19 | 10 | Could the site be reclaimed for any other use after the plant becomes obsolete |
| 21 | 9 | Population density |
| 21 | 9 | Underground rock formations of the area |
| 23 | 5 | Drainage problems caused by increased impermeable surface area |
| 24 | 4 | Increased sedimentation in our lakes and streams caused by stripping of vegetation in plant construction |
| 25 | 3 | Transportation access to the plant |
| 25 | 3 | Stability of shoreland bluff areas |
| 27 | 2 | Discharge of chlorine and other water pollutants from treatment of intake water |
| 27 | 2 | Increase in noise pollution due to the transport of fuels |
| 29 | 1 | Indirect consequences to other areas due to construction of facilities |
| 29 | 1 | Preservation of woodlands |
| 31 | 0 | The aesthetic beauty of the area |
| 31 | 0 | Entrainment and entrapment of fish from cooling water source |
| 31 | 0 | Sulphur pollutants from coal-fired, both inhaled and ingested |
| 31 | 0 | Types of cooling methods to be used |
| 31 | 0 | Changes in longshore currents |
| 31 | 0 | The anxiety produced by people by the "uncertainty" of nuclear power plants |
| 31 | 0 | Changes in ice cover patterns |
| 31 | 0 | Increased concentration of particles in the air and resulting fallout on the area |
| 31 | 0 | Increased strontium-90 in milk supply |

Economic and Social

| Rank | Points | |
|---|---|---|
| 1 | 31 | The ability to meet the power "needs" by energy conservation measures rather than construction of power facilities |
| 2 | 23 | The various availabilities and costs of fuels |
| 2 | 23 | Loss of productive farmlands to power plants and transmission lines |
| 4 | 22 | Health and safety concerns of people living near a nuclear plant |
| 4 | 22 | The technological ability to meet power needs by alternative sources of energy |
| 6 | 21 | Moral responsibility to future generations |
| 7 | 19 | On site storage of nuclear wastes |
| 8 | 16 | The need for an ample energy supply to provide jobs and reduce unemployment |
| 9 | 15 | Costs/benefits of environmental protection equipment and systems to the public |
| 9 | 15 | Depletion of fossil fuels which prevents utilization by future generations |
| 11 | 14 | Support of public opinion. The will of the people should rule |
| 12 | 13 | Shift from scarce fuels to electricity |
| 13 | 12 | The effects on recreational use of adjacent lands and waters |
| 13 | 12 | Cost advantages and flexibility of nuclear power |
| 15 | 11 | The impacts of a large labor force during construction |
| 15 | 11 | Need for a detailed environmental impact statement |
| 17 | 10 | The large capital investment in high technology - intensive low labor intensive power facilities |
| 17 | 10 | Early research for preservation of historic sites of building |
| 19 | 9 | Impact of land values adjacent to the proposed site |
| 17 | 9 | Preserving the physical features that were instrumental in establishing the cultural heritage of the area |
| 19 | 8 | The anxiety produced in people to live or work in the immediate area of nuclear plants |
| 19 | 7 | Aesthetic beauty of the area |
| 21 | 7 | Stimulation of forms of economic growth unsuitable to the area |
| 22 | 7 | The political climate's lack of coordination between different government levels |
| 22 | 7 | The tax impacts of power plant siting |
| 22 | 6 | The inability to hold protest groups accountable for future power deficiencies |
| 22 | 5 | Reduction of access to the shoreline |
| 26 | 4 | Routing of nuclear waste transport |
| 27 | 4 | The effect on the agricultural community |
| 28 | 2 | Housing needs due to increased population during and after construction |
| 28 | 2 | Nuclear more expensive in long term |
| 30 | 1 | Streamline the avenues of protest to reduce costs |
| 30 | 0 | Terrorism and sabotage of nuclear |
| 32 | 0 | The ability of existing roads to handle increased traffic |
| 33 | 0 | Disruption caused by transportation of fuel |
| 33 | 0 | Increase of public service needs to the community |
| 33 | 0 | Political and technical restrictions to reprocessing nuclear wastes |
| 33 | 0 | The impact of cost of water for household use and other industrial purposes |
| 33 | 0 | Direct employment opportunities before, during and after plant construction |
| 33 | 0 | The impacts of energy intensive industries locating near power plants |

### Economic and Social (continued)

| Rank | Points | |
|---|---|---|
| 33 | 0 | Price-Anderson act limiting utility and government liability to nuclear accidents |
| 33 | 0 | Balancing increased health care costs due to power plant pollution against power plant benefits |

### Land Use

| Rank | Points | |
|---|---|---|
| 1 | 55 | Preservation of ag land |
| 2 | 33 | Need to locate power plants close to power users |
| 3 | 27 | Coordination of site selection process with community planning |
| 4 | 26 | Land impact of transmission line facilities |
| 5 | 24 | Need for and compliance with effective zoning and other land use regulations |
| 5 | 24 | Need for comprehensive environmental studies in waste disposal selection |
| 7 | 19 | Preservation of natural physical features that was instrumental in establishing the cultural heritage of the area |
| 7 | 19 | Protection of wetlands and woodlands and coastal area |
| 9 | 18 | Disruption of land during mining or disposal of elements used in the fuel cycle |
| 10 | 16 | Potential for multiple use of transmission corridor |
| 10 | 16 | Effect of nuclear plant on land use for recreational purposes |
| 12 | 15 | Early research and preservation of historic sites and buildings in the site area |
| 12 | 15 | Preservation of scenic shorelines |
| 12 | 15 | An aesthetic approach to the design of new power plant facilities |
| 15 | 11 | Beauty of the area and other aesthetic and scenic values which might be affected |
| 16 | 10 | Plant site location in sparsely populated areas |
| 17 | 8 | The need for landowners in the area to establish a resource conservation plan with the soil and water conservation district |
| 18 | 7 | Consider findings from research on the archaeological study of the area |
| 19 | 5 | Effective erosion control compatible with adjacent areas |
| 19 | 5 | Potential for land reclamation after site becomes obsolete |
| 19 | 5 | Review process of land condemnation by eminent domain in order to protect neighboring land ownership |
| 22 | 4 | Land use implications of potential nuclear accidents |
| 22 | 4 | Energy parks versus distributed plant sites |
| 24 | 0 | Protection of adjacent land from plant encroachment |

### Final Ranking

| | | |
|---|---|---|
| 1 | 31 | Radioactive exposure to humans and the ecosystem and food |
| 2 | 29 | Depletion of agricultural use for land |
| 3 | 24 | Costs/benefits of environmental protection equipment and systems to the public |
| 4 | 19 | The technological ability to meet power needs by alternative sources of energy |
| 5 | 18 | The ability to meet power "needs" by energy conservation measures, rather than construction of power facilities |
| 6 | 17 | Disposal of nuclear and coal wastes |
| 7 | 14 | Presentation of natural areas |
| 8 | 13 | The need for comprehensive environmental studies in waste disposal selection |
| 9 | 11 | Moral responsibility to future generations |
| 10 | 10 | The need for an ample energy supply to provide jobs and reduce unemployment |
| 10 | 10 | The various availabilities of costs of fuels |
| 10 | 10 | Need to locate power plants close to power users |
| 13 | 9 | Preservation of natural physical features that were instrumental in establishing the cultural heritage of the area |
| 14 | 8 | Maintaining and improving the integrity of the Great Lakes |
| 14 | 8 | Soil suitability for agriculture |
| 16 | 7 | Coordination of site selection process with community planning |
| 17 | 6 | Interference with wildlife and botanical habitation, especially near the mouth of the creek or river |
| 17 | 6 | Need for and compliance with effective zoning and other land use regulations |
| 19 | 5 | Change in air quality as a result of the addition, relative to present air quality |
| 19 | 5 | Depletion of fossil fuels which prevents utilization by future generations |
| 19 | 5 | Land impact of transmission line facilities |
| 22 | 4 | Potential for multiple use of transmission corridors |
| 23 | 3 | Effect of a nuclear power plant on land use for recreational purposes |
| 24 | 2 | Effect on aquatic life, plants, fish, etc. |
| 25 | 1 | Preservation of wetlands |
| 26 | 0 | Local climate patterns (wind, humidity, temperature) |
| 26 | 0 | Effective control and use of heat generated |
| 26 | 0 | On site storage of nuclear wastes |
| 26 | 0 | Protection of wetlands and woodlands and coastal areas |
| 26 | 0 | Disruption of land during the mining or disposal of elements used in the fuel cycle |

GROUP 3

### Biological and Physical

| Rank | Points | |
|---|---|---|
| 1 | 62 | (1) Accidental release of nuclear wastes to human environment<br>(2) Radiation escape - routine or accidental; sabotage<br>(3) Safety protection against runaway reaction, vandalism, crime, sabotage |
| 2 | 53 | Long term waste disposal needs (area, acres, groundwater impacts) and containment (both coal and nuclear) |
| 3 | 41 | (1) What happens to nuclear plant when fuel runs out or plant retired<br>(2) Fuel supply for company |
| 4 | 34 | Heavy vapor emission - cooling towers, fog, driving, health effects, building damage |
| 5 | 33 | (1) Air pollution - high level and cumulative low level<br>(2) $SO_2/O_3$ emissions - affects plants, animals, humans |
| 5 | 33 | (1) Transmission lines - static, TV and radio interference<br>(2) Put power poles along fences, roads, not across fields |
| 7 | 26 | Long term availability fuel and impact of obtaining fuel-strip mining |
| 8 | 17 | Animals - including people and plants - food, trees preservation - danger from nuclear aid |
| 9 | 16 | Far from population |
| 10 | 15 | Transportation of nuclear wastes to and from processors |
| 11 | 14 | Not in geophysical fault area. Entombment - long term problem. Obsolete plant - what happens |
| 11 | 14 | Cumulative human life effects from low level radiation. Genetic effects. Future generations too |
| 13 | 13 | Protect animals and plants during construction and operation phases |
| 13 | 13 | Power plant as close as possible to users to maintain quality of life we have |
| 15 | 12 | Use community water, sewers |
| 16 | 11 | On communities - energy available or not. What if we don't have energy |
| 17 | 8 | Warm water discharge on inland (not Lake Michigan) water |
| 17 | 8 | Thermal problems: land, water, air |
| 17 | 8 | Health of operators, maintenance and repairs. Nuclear, mining, manufacturing nuclear, and coal mining - including nuclear breeder. Health of coal plant workers too. |
| 20 | 6 | Food chain radiation buildup |
| 21 | 5 | Effect on aquatic life of plant discharges on natural environment |
| 22 | 4 | Best pollutant controls on coal, on mining, storing, burning. Best health and accident protection |
| 23 | 3 | Radiation contamination carried by Great Lakes elsewhere |
| 24 | 1 | Juxtaposition of warm water and sanitary sewage discharge points |
| 25 | 0 | Impact - mutation and heat on organisms in water - future impact |
| 25 | 0 | Put on Lake Superior instead of Lake Michigan - Milwaukee and Chicago affecting Lake Michigan |
| 25 | 0 | Warms Lake Michigan for swimming |
| 25 | 0 | Land contamination from radioactive particle buildup |

### Economic and Social

| Rank | Points | |
|---|---|---|
| 1 | 28 | (1) Cost of impact on services - fire, police, water, sewer, streets and highways<br>(2) Affect on local taxes +/or - |
| 2 | 22 | (1) Economic effect of nonexpansion of power per capita and to replace existing power plants as they age<br>(2) Prevention or modification of lower standard of living by meeting energy needs |
| 3 | 18 | Cost of building nuclear vs. coal. Hidden nuclear costs - size of area, entombment, require more area, etc. |
| 4 | 17 | Land values |
| 4 | 17 | Why not substitute solar or wind power |
| 6 | 15 | Availability of power accelerates growth - attracts population - affects quality of life |
| 7 | 14 | Increased employment directly and indirectly linked to plant |
| 7 | 14 | Lessen dependence on other forms of energy that may be running out or becoming more expensive |
| 9 | 13 | Bring in new industry |
| 9 | 13 | Cogeneration - sell steam and electricity (use 60% fuel energy) |
| 9 | 13 | Increase community tax base |
| 9 | 13 | Provision radioisotopes for pharmecutical, industry, safety devices, hospitals |
| 13 | 12 | Short term housing and school requirements |
| 13 | 12 | Terrorism and sabotage - making bombs, contamination (air, land, water) threats as a social problem |
| 15 | 10 | Keep more tax money in county |
| 15 | 10 | Moral and social effect of people concerned only with energy needs and not concerned about negative effects |
| 16 | 9 | Relatively short life nuclear plant - cost caretaker responsibility to future |
| 16 | 9 | Use warm water for fish hatchery (on shore) or perch in tanks. Tags on fish - commercial limits and sports limits on catch |
| 16 | 9 | Energy conservation and alternate sources - less reliance on electricity and less depletion of resources and funds diverted for alternate sources |
| 16 | 9 | Economic and social consequences of mutation and genetic effects and of land contamination-radiation, gen. effects - man, plants, animals |
| 16 | 9 | Education needs - training technicians for power plant and new industry |
| 21 | 7 | Keep people informed |
| 22 | 6 | Need? Balance conservation and efficiency against additional facilities |
| 23 | 5 | Conservation of energy hard as build more and more power plants |

Economic and Social (continued)

| Rank | Points | |
|---|---|---|
| 23 | 5 | Social problems (crime, delinquency, alcoholism, etc.) in boom town areas near mining |
| 25 | 4 | Plant trees instead of cropland near plant - land owned by company |
| 26 | 3 | Use heat for district heating |
| 27 | 0 | Effect on local business and/or - |
| 27 | 0 | Effect of capital intensive giant in area. Proper taxation - Two Creeks |
| 27 | 0 | Insurance costs - local |
| 27 | 0 | Locate in north near labor supply |
| 27 | 0 | Power lines underground |
| 27 | 0 | Growth may occur where growth not wanted |

Land Use

| Rank | Points | |
|---|---|---|
| 1 | 40 | Effect of transportation of fuels and wastes on land |
| 1 | 40 | (1) Land impact of transmission lines (2) Aesthetic impact of transmission lines. Ecosystem impact of transmission lines (wetlands and woods). Therefore, power plants should be closer to users |
| 3 | 35 | Strip mining ravages land |
| 4 | 27 | Land modification/disturbance by waste disposal |
| 5 | 26 | Stay away from ag land and historical sites and natural beauty areas including historical stores of Lake Michigan |
| 6 | 25 | Use some land as park or camping area. Multiple use facilities on power company land-natural, hunting |
| 7 | 22 | Restore drainage and waterways |
| 8 | 21 | Relocation of people from power plant site |
| 9 | 19 | Increased population in area possibly unprepared for it (land use planning) |
| 10 | 18 | Scenic value of cement covered nuclear power plant for 200 years after 40 years operation |
| 11 | 15 | Concern over detrimental effect energy has on land use by industry in the vicinity of power plant |
| 12 | 14 | Nuclear - lose land from ecological system, from emotional needs (scenic values), farmland and lowered water table |
| 13 | 12 | Protecting wildlife habitat |
| 14 | 9 | Coal uses less land |
| 15 | 7 | Have city school kids plant trees and shrubs |

Final Ranking

| Rank | Points | |
|---|---|---|
| 1 | 39 | Long-term waste disposal needs - area (acres and groundwater) and containment - both nuclear and coal |
| 2 | 32 | Radiation excape - routine or accident to human environment, safety protection from runaway reaction or sabotage vandalism |
| 3 | 24 | Economic effect of non-expansion of power plants. As population grows - amount per person and to replace old units. Prevention or modification of lowering standard of living by meeting energy needs |
| 4 | 19 | Effect on local taxes; cost of impact on services - fire, police, water, sewer, streets and highways |
| 5 | 18 | Why not substitute solar or wind power |
| 5 | 18 | Land values |
| 7 | 17 | Heavy vapor emissions - cooling towers. Fog - driving safety, health effects, building damage |
| 7 | 17 | Lessen dependence on other form of energy that may be running out or becoming more expensive |
| 9 | 14 | Bring in new industry |
| 9 | 14 | Transmission lines - aesthetic and ecosystem impact - put plants closer to users |
| 11 | 11 | What happens to nuclear plant when fuel runs out or plant is retired |
| 11 | 11 | Air pollution - high level and cumulative low level of $SO_2/O_3$ emissions - effect on plants, animals and man |
| 11 | 11 | Long term availability of fuel and impact of obtaining fuel/strip mining |
| 11 | 11 | Animals (including people) and plants - food and tree preservation - danger from nuclear and air emissions |
| 15 | 10 | Cost of building nuclear vs. coal. Hidden nuclear costs - size of area, require more area, size reserve, entombment |
| 15 | 10 | Provision radioisotopes - pharmaceuticals, industry, hospitals, safety |
| 17 | 9 | Inrrease community tax base |
| 18 | 8 | Transportation of nuclear fuel and wastes to and from processors |
| 18 | 8 | Strip mining ravages land |
| 20 | 6 | Availability of power, accelerate growth, attract population, affect quality of life |
| 20 | 6 | Relocation of people from site |
| 22 | 5 | Cogeneration - sell steam and electricity |
| 23 | 4 | Increased employment directly and indir indirectly linked to plant |
| 23 | 4 | Land modification - waste disposal |
| 25 | 3 | Transport fuel and waste |
| 26 | 1 | Avoid agricultural land, historic sites, scenic areas |
| 27 | 0 | Transmission lines - static: TV and radio interference, and poles along fences or roads, not across fields |
| 27 | 0 | Far from population |
| 27 | 0 | Multiple use land on site - camps, hunting, natural area |
| 27 | 0 | Increased population in unprepared area - land use plan |
| 27 | 0 | Scenic value: concrete covered plant for 200 years after 40 years use |
| 27 | 0 | Detrimental effect of industry near power plant on land |

GROUP 4

## Biological and Physical

| Rank | Points | |
|---|---|---|
| 1 | 41 | Danger of radioactivity getting into food chain and water table |
| 2 | 34 | Coal - possibility of endangering earth's ozone layer |
| 3 | 31 | Possibility of radiation |
| 4 | 30 | Disposal - utilization of energy waste |
| 4 | 30 | Airborne emissions' effect on plants, animals, and humans |
| 6 | 29 | Effects of plants and transmission lines on breeding and migration habits |
| 7 | 26 | Effect upon communities' drinking water |
| 8 | 25 | Isolating land used for nuclear waste disposal from biosphere |
| 8 | 25 | Effect on water temperature |
| 10 | 24 | Disposal of sulphur compounds |
| 11 | 22 | Safety |
| 12 | 21 | Returning high temperature water into lake |
| 13 | 18 | Water and air pollution |
| 14 | 17 | In the case of nuclear plant, building back-up unit that may endanger more of the environment |
| 15 | 15 | Aquatic life in Lake Michigan |
| 15 | 15 | Heat island effect (associated with group of plants) |
| 17 | 14 | Overabundance of marine life attracted to the area |
| 18 | 13 | Long term deterioration of containers |
| 19 | 10 | Life in general |

## Economic and Social

| Rank | Points | |
|---|---|---|
| 1 | 29 | Inadequate tax incentives for community involved |
| 2 | 26 | Hidden cost associated with construction of nuclear power plant (entombing plant) |
| 2 | 26 | Insurance companies will not insure home owner or business in vicinity of power plant (in case of major, nuclear accident) |
| 4 | 23 | Effect of new industry locating in area |
| 5 | 21 | Raising employment |
| 6 | 20 | Cost of building and operating plant is much greater than conservation or more efficient use of energy |
| 7 | 19 | Price-Anderson act diminishing utilities liability in case of nuclear accident |
| 8 | 18 | Possibility of greater electric energy in area |
| 8 | 18 | Housing construction workers |
| 8 | 18 | Provides energy for now and future thus insuring retention of jobs at local, statewide area (midwest), thus relieving burden of oil at this time |
| 8 | 18 | Potential loss of revenue for farmers whose products may be contaminated from radioactivity getting into food chain |
| 12 | 15 | Locating plants in rural areas reduces opportunity to provide heat for homes and industry |
| 13 | 14 | Expanded economy of the area |
| 13 | 14 | Possible loss of population living in proximity to a plant |
| 13 | 14 | Social-aesthetic costs of losing natural areas like wetlands, forests and shorelines |
| 16 | 13 | Creates the need for additional service business to serve needs of added laborers in labor market, thus ensuring jobs and businesses (creating service type businesses) |
| 17 | 11 | Improve fishing from warm water discharge |
| 18 | 10 | Tax cost of building plant not usually incurred by community that is not major user |
| 19 | 9 | Loss of efficiency in transporting power over long distances |
| 19 | 9 | High cost of uranium |
| 21 | 6 | A drain on recreation |
| 21 | 6 | Entombing plant would take productive land out of use for many years |
| 21 | 6 | Social problem that accompanies bringing in labor force, exposing them to larger doses of radiation in very short times. |
| 24 | 5 | Increasing local labor costs while plant under construction |
| 24 | 5 | Duration of a nuclear plant |
| 26 | 4 | Nuclear plant would provide few low-level jobs - coal plant would provide more |
| 27 | 2 | Large plant using up an area's air quality standard (level) |
| 28 | 0 | Cost of road construction |
| 28 | 0 | Transportation congestion - construction operation |
| 28 | 0 | Influx of undersirables in work force during construction |
| 28 | 0 | New nuclear plants are less efficient than old plants because they are so large(?) |
| 28 | 0 | Transportation problem in bringing in coal |

## Land Use

| Rank | Points | |
|---|---|---|
| 1 | 32 | Condemnation proceedings used to acquire land are not fair to landowner |
| 2 | 31 | Land recovered from strip mining is not as productive as before. Mine tailings from uranium mines leaves land unusable |
| 3 | 30 | Cannot count on geological stability of sites chosen for permanent disposal of nuclear waste |
| 4 | 28 | Plant would improve business climate of area |
| 5 | 25 | Problem of using prime agricultural land for facilities rather than locating in industrial area |
| 6 | 22 | Takes least farmland out of production, but provides the land and water facility for an energy plant that is much needed |

### Land Use (continued)

| Rank | Points | |
|---|---|---|
| 6 | 22 | Storage of waste would adversely affect land values |
| 6 | 22 | Strip mining - ugly |
| 6 | 22 | Nuclear - further land is tied up by expensive backup plants |
| 10 | 20 | Scenic value of power facility |
| 11 | 17 | Damage to crops from air pollution (nuclear-coal) |
| 12 | 16 | Soil erosion, farming, mining, forestry, scenic value affected by transmission lines |
| 12 | 16 | Recreation and tourism value of area (positive) |
| 12 | 16 | On-site entombment freezes land on which materials are deposited and plant is located |
| 15 | 14 | Excessive land required for power facilities by regulation (nuclear) |
| 16 | 13 | Could be creating a problem of having an an inferior - poorly planned housing development in area where power plant is developed |
| 17 | 11 | Beauty of Lake Michigan shoreline ruined by power plants that dot it |
| 18 | 10 | Safety to populated area |
| 19 | 8 | Plants and transmission lines are ugly |
| 19 | 8 | Major users of power are not directly affected by land use problems |
| 21 | 0 | Plant would not cause problems to archaeologic-historic values |

### Final Ranking

| Rank | Points | |
|---|---|---|
| 1 | 29 | Danger of radioactivity getting into food chain and water table |
| 2 | 27 | Disposal - utilization of energy waste |
| 2 | 27 | Inadequate tax incentives for community involved |
| 4 | 26 | Condemnation proceedings used to acquire land are unfair to landowner |
| 5 | 23 | Cost of building and operating plant is much greater than conservation or more efficient use of energy |
| 6 | 16 | Airborne emissions' effect on plants, animals, and humans |
| 6 | 16 | Problem of using prime agricultural land for facilities rather than locating in already industrial areas |
| 6 | 16 | Raising employment |
| 9 | 15 | Expanded economy of area |
| 9 | 15 | Soil erosion, farming, mining, forestry, scenic value affected by transmission lines |
| 11 | 13 | Cannot count on geological stability of sites chosen for disposal of nuclear waste |
| 12 | 12 | Hidden cost associated with construction of nuclear power plant (entombing plant) |
| 13 | 11 | Potential loss of revenue for farmers whose products may be contaminated from radioactivity getting into food chain |
| 13 | 11 | Social-aesthetic costs of losing natural areas like wetlands, forests and shorelines |
| 15 | 10 | Disposal of sulphur compounds |
| 15 | 10 | Provides energy for now and future thus insuring retention of jobs at local, statewide area (midwest) thus relieving burden of oil at this time |
| 15 | 10 | Storage of waste affects land values |
| 18 | 9 | Creates need for additional service business to serve laborers |
| 19 | 8 | Effects of plants and transmission lines on breeding and migration habits |
| 19 | 8 | Price-Anderson act - diminishing utilities liability in case of nuclear accident |
| 19 | 8 | Possibility of greater electric energy in the area |
| 19 | 8 | Returning high temperature water into lake |
| 23 | 7 | Isolating land used for nuclear waste disposal from biosphere |
| 23 | 7 | Locating plants in rural areas reduces opportunity to provide heat for home and industry |
| 25 | 6 | Plant would improve business climate of the area |
| 25 | 6 | Takes least farmland out of production, but provides the land and water facility for an energy plant that is much needed |
| 25 | 6 | Nuclear plant building backup unit that may endanger more of environment |
| 28 | 5 | Effect on new industry locating in area |
| 29 | 4 | Coal-possibility of endangering earth's ozone layer |
| 30 | 3 | Housing construction workers |
| 31 | 2 | Nuclear - further land is tied up by expensive backup plants |
| 32 | 1 | Strip mining - ugly |
| 33 | 1 | Scenic value of power facility |
| 34 | 0 | Effect upon communities' drinking water |
| 34 | 0 | Effect on water temperature |
| 34 | 0 | Safety |
| 34 | 0 | Land recovered from strip mining is not as productive as before. Mine tailings from uranium mines leaves land unusable |
| 34 | 0 | Recreation and tourism value of the area (positive) |
| 34 | 0 | Possible loss of population living in proximity of plant |
| 34 | 0 | On-site entombment freezes land on which materials deposited |

## GROUP 5

### Biological and Physical

| Rank | Points | |
|---|---|---|
| 1 | 37 | Safety and security |
| 2 | 34 | Available land and closeness to water supply |
| 3 | 31 | Location in relation to existing residential, commercial and industrial areas |
| 4 | 29 | Disposal of waste heat |

Biological and Physical (continued)

| Rank | Points | |
|---|---|---|
| 5 | 27 | Nuclear: no smoke and dust |
| 6 | 25 | Control of radioactive leakages and discharges |
| 7 | 22 | Transporting of spent fuel out of the area |
| 8 | 21 | Smoke and dust from coal plants |
| 8 | 19 | Effects of power plants on plants, aquatic life, silva and fauna |
| 9 | 19 | Impact on recreation: fishing, hunting, boating |
| 11 | 16 | Interfacing of power plant and other public and private facilities (power plant next to sewage plant next to fishing, etc.) |
| 11 | 16 | How to choose between air and water pollution |
| 13 | 15 | How much land is needed? |
| 14 | 14 | Underground power transmission lines wherever possible |
| 15 | 13 | Better research on elimination of radio and TV interference from transmission lines |
| 16 | 12 | Effect on roads and traffic during construction |
| 17 | 10 | Using waste heat for fisheries or something... |
| 17 | 10 | Water cooling towers |
| 19 | 9 | Restriction of access to areas used for recreational activity |
| 20 | 8 | Storage of nuclear materials |
| 21 | 7 | Availability of water (e.g., Lake Michigan, large sources needed) |
| 22 | 6 | Coal gondolas interfering with traffic |
| 22 | 6 | Plant design should conform to appearance of the area |
| 22 | 6 | Appearance, etc., of coal piles |
| 22 | 6 | Public should know where to go (what resources are available) for verifying information in environmental impact statements |
| 26 | 4 | Noise |
| 26 | 4 | Availability of roads, etc., for people to leave area in case of accident |
| 26 | 4 | Planning of transmission lines not to disrupt agricultural land |
| 29 | 3 | Development of buffer between plant and surrounding area |
| 29 | 3 | Can lay public relate to all the statistics in environmental impact statement (i.e., plummage dimensions, size, etc.) |
| 29 | 3 | Closer liaison between civil defense and power plant in event of major disasters (should be in S.O.P.) |
| 32 | 2 | Changes in environment affecting wildlife (large scale changes) |
| 33 | 0 | Using of valuable farmland for the site |

Economic and Social

| Rank | Points | |
|---|---|---|
| 1 | 68 | Effect on taxes |
| 2 | 47 | Total local community costs (includes tax structure, schools, housing, natural areas...) |
| 3 | 32 | Cost of power bought by consumer |
| 4 | 26 | New industries to service plant |
| 5 | 24 | Additional employment (construction and operation and effects of this on local merchants) |
| 6 | 20 | Need for imported personnel (local labor capabilities not sufficient to get contracts) |
| 7 | 18 | Access to large body of water where heat can be discharged with low environmental effect |
| 7 | 18 | Need to present pros and cons of economic and social costs to the local public |
| 9 | 16 | Jobs for building trade workers |
| 10 | 14 | Loss of productive land |
| 11 | 12 | Increased recreation facilities |
| 11 | 12 | Bringing in outside businesses to area |
| 11 | 12 | Easing of EPA regulations for uses of low sulfur fuel |
| 14 | 11 | Nearness to existing transmission lines |
| 15 | 10 | Availability of land for the site |
| 15 | 10 | Government loans (loan interest rates) for local governments on new construction |
| 17 | 9 | Access to transportation facilities for fuel |
| 18 | 8 | No brown-outs |
| 19 | 6 | Survey costs: private vs. public ownership |
| 19 | 6 | Railroad traffic |
| 19 | 6 | Profits on sale of land for plant and compensation for transmission lines (are owners satisfied?) |
| 22 | 5 | Changes in living standards in local community |
| 22 | 5 | Influx of tourists (plant: point-of-interest) |
| 22 | 5 | Costs of potential disasters: nuclear and natural |
| 25 | 4 | Creating housing problems |
| 25 | 4 | Routing changes needed for buses, high traffic where fogging and icing from cooling towers occurs |
| 25 | 4 | Effect of black lung and other hazards to coal miners |
| 28 | 3 | Switching grid to other power facilities in event of power failure |
| 29 | 2 | When present generators wear out, replace with nuclear |
| 30 | 0 | Creates crime and violence during construction |
| 30 | 0 | Access to low sulfur fuel |
| 30 | 0 | Homes and new buildings increase tax base |
| 30 | 0 | Costs of access and bypass to and around plant |

Land Use

| Rank | Points | |
|---|---|---|
| 1 | 56 | Develop good land conservation practices on land owned by the power plant |
| 2 | 39 | Preserve historic and architectural sites |
| 3 | 30 | Provide public access to lake for public use (recreation) |
| 4 | 29 | Return land that is not needed back to private ownership |
| 5 | 28 | New sites should not be sited in residential areas |

Land Use (continued)

| Rank | Points | |
|---|---|---|
| 6 | 27 | Keep prospective land purchase secret to avoid land speculation |
| 7 | 26 | Preserve wetlands |
| 7 | 26 | Loss of land used for production of food |
| 9 | 20 | Preserve fishing and boating in area |
| 10 | 18 | Aesthetic design should be compatible with the area |
| 11 | 17 | Recognize land use concepts of "greater than local concern', "we gotta have energy" |
| 12 | 16 | Locate site in center of energy distribution system |
| 13 | 13 | Keep boundary roads intact wherever possible |
| 14 | 12 | Make park out of unused land |
| 14 | 12 | Plant trees, etc., to obscure coal piles, etc. |
| 14 | 12 | Plants tend to improve police and fire protection for surrounding rural communities |
| 17 | 10 | Unsightly cooling towers |
| 18 | 8 | Coal piles and wastes: looks, space, etc. |
| 18 | 8 | Restoration of lands after the plant is entombed |
| 20 | 7 | Utilize area as tourist attraction |
| 20 | 7 | Plants bring urban people to rural areas because of tax advantages |
| 20 | 7 | Provide housing and facilities close to plant for personnel |
| 20 | 7 | Easy access from mine to power plant site |
| 24 | 5 | Power companies should provide sanitation facilities |
| 25 | 2 | Expansion of existing plants should not create new and/or more problems |
| 26 | 1 | Make survey through local organization of local historical sites |

Final Ranking

| Rank | Points | |
|---|---|---|
| 1 | 45 | Effect on taxes |
| 2 | 37 | Total local community costs (includes tax structure, schools, housing, natural areas...) |
| 3 | 34 | Location in relation to existing residential, commercial and industrial areas |
| 4 | 29 | Available land and closeness to water supply |
| 5 | 28 | Safety and security |
| 6 | 21 | Effects of power plants on plants, aquatic life, silva and fauna |
| 7 | 18 | Cost of power bought by consumer |
| 7 | 18 | Loss of productive land |
| 9 | 16 | Develop good land conservation practices on land owned by the power plant |
| 10 | 15 | Disposal of waste heat |
| 11 | 14 | Control of radioactive leakages and discharges |
| 11 | 14 | Access to large body of water where heat can be discharged with low environmental effect |
| 13 | 12 | Preserve fishing and boating in area |
| 14 | 11 | Provide public access to lake for public use (recreation) |
| 14 | 11 | Loss of land used for production of food |
| 16 | 10 | Transporting of spent fuel out of the area |
| 17 | 8 | Nuclear: no smoke and dust |
| 18 | 7 | Need to present pros and cons of economic and social costs to the local public |
| 18 | 7 | Preserve historic and architectural sites |
| 20 | 6 | New industries to service plant |
| 20 | 6 | New plants should not be sited in residential areas |
| 22 | 5 | Additional employment (construction and operation) and effects of this on local merchants |
| 24 | 4 | Impact on recreation: fishing, hunting, boating |
| 26 | 2 | Smoke and dust from coal plants |
| 27 | 1 | Need for power |
| 28 | 0 | Need for imported personnel (local labor capabilities not sufficient to get contracts) |
| 28 | 0 | Return land that is not needed back to private ownership |
| 28 | 0 | Keep prospective land purchase secret to avoid land speculation |
| 28 | 0 | Preserve wetlands |

# APPENDIX F

## THE SURVEY

SPECIAL SURVEY FOR WORKSHOP PARTICIPANTS

WE WOULD APPRECIATE YOUR HELP IN ANSWERING THE FOLLOWING QUESTIONS, WHICH MAY NOT BE COVERED DURING THE WORKSHOP. YOUR ANSWERS WILL BE AN IMPORTANT COMPONENT OF THE SUMMARY REPORT.

How would you rate each of the following areas as a potential nuclear power plant site? Please circle the number which indicates your rating of each type of area. Please read all the categories before you start circling your answers.

| | VERY POOR LOCATION | POOR LOCATION | NO OPINION | GOOD LOCATION | VERY GOOD LOCATION |
|---|---|---|---|---|---|
| IN HEAVILY INDUSTRIAL AREAS | -2 | -1 | 0 | +1 | +2 |
| NEAR (WITHIN 2 MILES OF) HEAVILY INDUSTRIAL AREAS | -2 | -1 | 0 | +1 | +2 |
| IN AGRICULTURAL AREAS | -2 | -1 | 0 | +1 | +2 |
| NEAR AGRICULTURAL AREAS | -2 | -1 | 0 | +1 | +2 |
| IN LIGHT COMMERCIAL AREAS | -2 | -1 | 0 | +1 | +2 |
| NEAR LIGHT COMMERCIAL AREAS | -2 | -1 | 0 | +1 | +2 |
| IN RESIDENTIAL AREAS | -2 | -1 | 0 | +1 | +2 |
| NEAR RESIDENTIAL AREAS | -2 | -1 | 0 | +1 | +2 |
| NEAR PARK AREA | -2 | -1 | 0 | +1 | +2 |
| IN FOREST AREAS | -2 | -1 | 0 | +1 | +2 |
| NEAR FOREST AREAS | -2 | -1 | 0 | +1 | +2 |
| ON GREAT LAKES SHORELINES | -2 | -1 | 0 | +1 | +2 |
| NEAR GREAT LAKES SHORELINES | -2 | -1 | 0 | +1 | +2 |
| ON SHORES OF SMALLER LAKES | -2 | -1 | 0 | +1 | +2 |
| NEAR SHORES OF SMALLER LAKES | -2 | -1 | 0 | +1 | +2 |
| IN WETLANDS | -2 | -1 | 0 | +1 | +2 |
| NEAR WETLANDS | -2 | -1 | 0 | +1 | +2 |
| ON RIVERBANKS | -2 | -1 | 0 | +1 | +2 |
| NEAR RIVERBANKS | -2 | -1 | 0 | +1 | +2 |

How would you feel about the location of a power plant in your area, under each of the following two conditions?

| | STRONGLY NEGATIVE | NEGATIVE | NEUTRAL | POSITIVE | STRONGLY POSITIVE |
|---|---|---|---|---|---|
| 1. The power plant would basically supply energy to your area. | -2 | -1 | 0 | +1 | +2 |
| 2. The plant would basically supply energy to other parts of the state. | -2 | -1 | 0 | +1 | +2 |

To supply about the same amount of power, do you think one large plant would be ___better than ___about the same as, or ___worse than several smaller plants?

Have the new tax laws changed the way you would feel about the construction of a power plant in your community?

___YES ___NO

If "yes", how have your feelings changed?

much more negative     somewhat more negative     more positive     much more positive

About how far do you live from any existing power plant?

___less than 5 miles ___from 5-10 miles ___further than 10 miles

___don't know

Can you see the power plant from where you live? ___YES ___NO ___Don't know

Can you see high voltage transmission lines from where you live?

___YES ___NO ___Don't know

We would like you to rank the following 8 types of areas for their suitability for high-voltage transmission lines, from "1" (most suitable) through "8" (least suitable).

Please write the appropriate number in the space next to each item.

___AGRICULTURAL LAND

___RESIDENTIAL AREAS

___INDUSTRIAL AREAS

___SHORELINE AREAS

___COMMERCIAL AREAS

___PARKS

___WETLANDS

___FORESTS

For how many years have you lived in this area?

___less than 1 ___1-5 years ___5-10 years ___more than 10

Next we would like you to rank the following seven types of areas for their suitability for a power plant site, from "1" (most suitable) through "7" (least suitable). Please write the appropriate number in the space next to each item.

___PARKS

___RESIDENTIAL AREAS

___AGRICULTURAL AREAS

___LIGHT COMMERCIAL AREAS

___HEAVILY INDUSTRIAL AREAS

___NATURAL AREAS

___SHORELINE AREAS

Do you presently belong to any of the following types of organizations, associations or clubs, or have you belonged within the past three years? Please check each appropriate choice.

____AGRICULTURAL

____ENVIRONMENTAL

____BUSINESS

____PROFESSIONAL

____SPORTS OR RECREATIONAL

____POLITICAL

____CIVIC

____OTHER________________________

What is your occupation? Please be as specific as possible.

________________________________________

What is your age?

21-35 36-50 50+

Overall, how would you rate the Power Plant Siting Workshop?

____POOR

____FAIR, BUT COULD HAVE BEEN BETTER

____GOOD, ONLY MINOR PROBLEMS

____EXCELLENT

If you would like to comment on any aspect of the workshop or the concerns addressed, please tell us about them in the space below.

________________________________________

________________________________________

________________________________________

________________________________________

THANK YOU VERY MUCH FOR YOUR HELP.

One additional sheet -

How would you rate each of the following areas as a potential. COAL power plant site? Please circle the number which indicates your rating of each type of area. Please read all the categories before you start circling your answers.

| | VERY POOR LOCATION | POOR LOCATION | NO OPINION | GOOD LOCATION | VERY GOOD LOCATION |
|---|---|---|---|---|---|
| IN HEAVILY INDUSTRIAL AREAS | -2 | -1 | 0 | +1 | +2 |
| NEAR (WITHIN 2 MILES OF) HEAVILY INDUSTRIAL AREAS | -2 | -1 | 0 | +1 | +2 |
| IN AGRICULTURAL AREAS | -2 | -1 | 0 | +1 | +2 |
| NEAR AGRICULTURAL AREAS | -2 | -1 | 0 | +1 | +2 |
| IN LIGHT COMMERCIAL AREAS | -2 | -1 | 0 | +1 | +2 |
| NEAR LIGHT COMMERCIAL AREAS | -2 | -1 | 0 | +1 | +2 |
| IN RESIDENTIAL AREAS | -2 | -1 | 0 | +1 | +2 |
| NEAR RESIDENTIAL AREAS | -2 | -1 | 0 | +1 | +2 |
| NEAR PARK AREAS | -2 | -1 | 0 | +1 | +2 |
| IN FOREST AREAS | -2 | -1 | 0 | +1 | +2 |
| NEAR FOREST AREAS | -2 | -1 | 0 | +1 | +2 |
| ON GREAT LAKES SHORELINES | -2 | -1 | 0 | +1 | +2 |
| NEAR GREAT LAKES SHORELINES | -2 | -1 | 0 | +1 | +2 |
| ON SHORES OF SMALLER LAKES | -2 | -1 | 0 | +1 | +2 |
| NEAR SHORES OF SMALLER LAKES | -2 | -1 | 0 | +1 | +2 |

| | | | | | |
|---|---|---|---|---|---|
| IN WETLANDS | -2 | -1 | 0 | +1 | +2 |
| NEAR WETLANDS | -2 | -1 | 0 | +1 | +2 |
| | | | | | |
| ON RIVERBANKS | -2 | -1 | 0 | +1 | +2 |
| NEAR RIVERBANKS | -2 | -1 | 0 | +1 | +2 |

Next we would like you to rank the following seven types of areas for their suitability for a COAL fired power plant site, from "1" (most suitable) through "7" (least suitable). Please write the appropriate number in the space next to each item.

_______ PARKS

_______ RESIDENTIAL AREAS

_______ AGRICULTURAL AREAS

_______ LIGHT COMMERCIAL AREAS

_______ HEAVILY INDUSTRIAL AREAS

_______ NATURAL AREAS

_______ SHORELINE AREAS

# APPENDIX G

# COMMENTS ON THE WORKSHOPS

## COMMENTS OF THOSE WHO RATED THE WORKSHOPS AS POOR

This workshop is for those who can afford to take a day off work and have the inclination to care, or are unemployed. Perhaps a number of persons, as myself, would like to be here and help you but the economic crises caused by the loss of a day's wages is hard on my family. I personally would prefer an evening or weekend date if we all get together to do this again. Thank you. (Carpenter)

Most opinions were unqualified. More education in nuclear power and safety to educate all is badly needed. (Ass't General Manager)

Employed grass roots people can't afford to attend these workshops on weekdays and daylight hours. (Professor)

A very fine workshop. I enjoyed it very much. (Retired Science & Math Teacher).

Other: Farmer

## COMMENTS OF THOSE WHO RATED THE WORKSHOPS AS FAIR

Since all workshops were held at potential nuclear sites and since site considerations, by federal and state law, differ for type of plant, I believe an outright admission that the workshop was a sampling of opinion on nuclear plants should have been made explicit from the beginning. For instance, how can this questionnaire ask if the first four categories on p 1 are good nuclear sites when federal regulations prohibit such siting? (Teacher)

Much input by the participants, but no concerns or questions answered! Were concerns real or well-founded? This type of workshop pinpoints concerns, but provided NO ANSWERS. There is a need for some informative sessions by qualified, non-biased authorities. Perhaps more direction by group leaders in pinpointing or defining concerns - when concerns numbered over 30 there was overlapping and final count was affected. The question, "Is anyone else concerned with this area? Can we combine your concern, or not???", could have kept number of duplications down. (Advertising Exec.)

The participants could not follow directions at all. (Dist. Manager, Utility Company)

It is frustrating to deal with such complex issues in such a short time. I'm not sure the data is reliable. Grouping concerns before voting might have helped. (Homemaker, Teacher)

Assumption is for large central station plants (I think) answers to questions (on this survey) are different for different sizes and types of plants. (Secretary)

Fair, but could have been better. There is only so much you can do with this sort of thing. I did learn a lot. I'm just not optimistic of the outcome of the research, lobbies in Washington D.C. being what they are. I am concerned that this material could be used to the advantage of industry. When they know what John Q. Public is concerned about, they can set to work launching an ad campaign to dispel his beliefs. (Houseparent for retarded/Office Worker)

I feel it is highly invalid. I rebel at the whole notion that A.P.A. bureaucrats should decide where plants will go. The industry, local communities and the market can best determine this. Adequate incentives via tax benefits will induce communities to put up with the disadvantage of hosting a plant. Perhaps communities could bid (negatively) for plants. (i.e., "Pay us X$ to cover the risk and inconvenience of a plant to us and we will accept one.") Everyone wants power but no one wants plants near them. Make social costs private costs (i.e., don't let plants impose costs on others for which they are not reimbursed. Anti-pollution laws accomplish this - relocation allowances accomplish this, etc. (Economist, Farm Wife, Politician)

A workshop such as this oversimplifies the array of economic interdependencies of the environmental, social and land use considerations of power plant siting. (Economic Community Development, City)

I don't like this survey. I oppose nukes and oppose their siting anywhere. Also I question the validity of this workshop due to sample problems, specifically how do absences of certain representatives affect the results. Secondly, were union people invited? (Hospital Orderly)

A boring exercise in democratic effort to get opinions - the value of which is questionable at best. (Teacher)

Survey by mail and use of computer could have been used without taking away from time needs of participants.
(City Attorney)

There's a limit to how much of this type of analysis and how representative of informed public opinion it is.
(Municipal Public Works Director)

Too much ground to cover in time allotted. The number of similar concerns with small differences in wording invalidates the ranking. As the lesser of two evils, I would prefer consolidation of similar concerns.
(Paper Mill Executive)

I am primarily interested in seeing that we build power plants as rapidly as possible. Not strict enough in separating categories. Good method of extracting ideas. (Paper Mill Executive)

Based on intuitive thoughts more discussion on how to approach the problem would be helpful and make the workshop more meaningful. (Paper Mill Executive)

Excellent for the purpose of gathering opinions. The purpose of the workshop wasn't clearly disclosed.
(Manager Financial Inst. & Chamber President)

All interests at my table not represented in approximately equal numbers: 10 pronuclear, 1 opposed. (Homemaker)

Others: President of Chamber of Commerce, County Agricultural Agent, Executive of Electric Utility, Insurance Agent, County Planner, Consulting Electrical Engineer.

## COMMENTS OF THOSE WHO RATED THE WORKSHOPS AS GOOD

(Idea excellent). Would recommend the use of a referendum vote in areas of much dispute when nuclear plants are controversial.
(Owner-Operator of Commercial Sign Studio)

Don't address these as concerns, these are, as yet unsolvable problems. (Housewife)

I feel the workshop helped to provide a better understanding of some of the problems facing everybody in meeting our energy needs. Believe a definition of the types of parks and forest areas you have in mind would be helpful in trying to place an evaluation on them for a site location. I personally feel that certain forest areas may well be considered a practical site. The same could probably apply to large wilderness area parks that are not normally used by large crowds. (Semi-Retired Business Executive)

Nowhere was there an effort to establish whether people wanted a plant or wanted less energy consumption.
(Housing Planner)

Covered much material - time is a problem - not much discussion. (Dairy Farmer)

Well conceived to obtain public opinion. Phraseology of several similar concerns could result in dilution of vote on an area.
(District Manager, Utility)

Scope seemed limited by prevailing power plant siting concerns in the area, particularly reflecting the concern about nuclear power. (Group Leader, Testing Services)

Some problem came about because of discussion of need vs. siting of plant. People need reassurance of need of plant in itself. These concerns should have been weeded, and concerns evaluated with the given: power plant is needed: Question, where to site? (Librarian)

In rating for essentially similar categories, participants may have split their votes, resulting in a low count for each, and eliminating them from the final list. Judgments for such long lists were hard to make and were probably unrealistic in choice of rating. (Retired College Professor)

There are many alternatives to some of these questions that were not listed. (General Farming)

Will bring out concerns which may reveal a need for better information to the public. (Div. Mgr. Elect. & Gas Utility)

Seemed to be quite productive. Heard good comments from participants. Only problems were those discussed below: Small group leaders tended to change wording of concerns listed by participants. Lost a lot of time during listing process by debating wording. Group too often changed what participant initially said. Heard group leader commenting on personal opinions during process. Her opinions may have tended to bias the group. (Coastal Planner)

Overlapping in biological physical and economic and social concerns. Ambiquity in some of statements as to what was meant, i.e., affect on local taxes (i.e. + or -). Habit of combining numbers to reduce voting choices was highly political.
(Supervisor in Post Secondary Education)

Method used is restrictive in expressing concerns. Relative measures hard to express. Priority of concerns are hard to express in a hurry. (Volunteer)

A lot of the concerns mentioned were repetitious and got very technical. They should have remained more general.
(Soil Conservationist)

Let's get a power plant of some kind started shortly. (Retired)

One possible problem is the distortion of findings (rankings) due to the interests of the individuals attending. They do not necessarily represent the total interests of the public. (Manager of Electric Utility)

Would have been interesting to have time to explore problems of greatest concern. (Dist. Manager, Utility)

More specific instructions on power plant siting - too much emphasis on specific sites in area. (Dist. Mgr., Wis. Electric Power Co.)

Difficult to wait for overall results so long. (Housewife, Newspaper Correspondent)

Assumptions should have included consideration of plant size - this affects my opinions markedly, also growth in overall power production. (Chemist)

I would have appreciated learning from some of the expertise in the group. (Housewife concerned with Env. quality)

What is the value - we need power plants - they have to be some place. (County Supervisor)

Clarify rating instructions. (Homemaker)

More specific definitions needed of concern categories. (Engineering Mgr., Prof. Engr.)

Should make the instructions for drafting criteria suggestions. (Lawyer)

Everyone wants power - no one wants to be inconvenienced. (Retired)

It's difficult for participants from both sides of issues to refrain from imposing their biases on others. (Manager, Electric Utility)

Ten is too many suggestions from each participant. Five would be better. (No occupation listed)

Send explanation, in brief, on mechanics and expectations of "nominal group" techniques along with workshop results...to all participants. (County Planning Director)

The nominal group approach was very appropriate for securing group opinions without stifling comments and participation. (Electric Utility Employee)

The letter inviting participation did not clarify what kind of a site was to be considered. I just presumed it would be a nuclear or coal-fired. It would have helped our research had we been informed more definitely. (Retired Teacher)

By agreement, cross out or combine minor concerns before voting to prevent spreading of votes amongst concerns. (Land Use Consultant)

The final words - a lot of different answers to one question. (Housewife)

Question that selection was completely balanced - perhaps due to area response. (Potato Plant Manager)

Concept is good, leaders are helpful. Moves right along. I am somewhat overwhelmed by so much attempted. (Retired School Administrator)

My concern is not with the workshop but with the lack of conservation of what we already have - the biggest waste is lighting of shopping centers. I feel they should close at 6 p.m. The parking lighting could be eliminated. Sunday openings should be eliminated - this would save thousands of gallons of gasoline. (Retired from sales)

Couldn't give reasons for not having power plants at all. I think we should have one category for people who want a crash program (like the flight to the moon) and it should be financed by the federal government. I think we should listen to Ralph Nader, Jacques Cousteau, Senator Frank Church, and Douglas LaFollette. We should have a crash program on solar and other forms of clean energy. (Housewife. Piano Teacher, Environmentalist)

Could have spent less time. (News Reporter)

Listing of ideas is good but interpretation of those ideas is a problem. Will they have the same meaning to someone else at a later time as they currently have for me? It is good to see that people are concerned: I hope these concerns are taken seriously by the powers that be. (Professor)

The scope was a little narrow. (Farmer)

I dislike the attitude taken that a nuclear plant will be built; that is nowhere near being a valid assumption. This assumption is very much evident in the way this survey is written. (Printing Contractor)

This program format is somewhat restrictive, but OK for large group in limited time. There is a probem of interpretation of categories. (Ag Writer, Journalist)

Should be more concern on shortage of electricity instead of danger. (Farmer)

I feel the workshop helped to provide a better understanding of some of the problems facing everybody in meeting our energy needs. Believe a definition of the types of parks and forest areas you have in mind would be helpful in trying to place an evaluation on them for a site location. I personally feel that certain forest areas may well be considered a practical site. The same could probably apply to large wilderness parks that are not normally used by large crowds. (Business Executive)

Keep power plants close to the prime usage, as not to interfere with the production of food and fiber for the underfed world. Even if the mass labor forces of the U.S. are not underfed. (Agriculture production of food and fiber)

Would have preferred separating the different types of power plants for the ranking process. (City Planner)

I'm sure some of my answers would be different if a specific site or sites were being considered. Hard to be realistic when thinking in generalities - trade-offs don't enter in in the same way. (Housewife active in Env. Org.)

I felt we should have been more positive in our approach to power plant siting. (Dairy Farmer)

I am not in favor of any new power plants (nuclear) until a number of issues are solved, namely, waste disposal, effective radioactive monitoring, prevention of sabotage, etc...I have recently become aware that if limestone can be added to coal production procedure, sulphur emissions are greatly reduced. On that basis, I answered the survey. (Student)

I think we should have been able to evaluate the top ten after listing to see if the group felt something should be moved up or out. (Housewife)

Enjoyed the people - did not realize the deep division of opinion. (Cash Grain and Mink Farmer)

Many of the individuals are not well enough informed to look at all the problems involved and their interrelationship. Many do not have technical knowledge to know what priorities should be. (Musician)

Others: County Surveyor and Realtor, Education, Retired Farmer/REA Board, Environmental Engineer/Contractor, Dairy Farmer, Planner, Homemaker/Commission on Aging, Chemistry Professor, Farmer/Trucker/Logger, Farmer/Seed Dealer, Vice-President Bank and Insurance Agent, Planner, Mechanical Engineer, Electrical Engineer, Housewife, Retired Teacher, Farmer, Writer, Farmer, Farmwife, Retired Engineer, Newspaper Reporter, Professor, Farmer, Education Supervisor, Plumbing and Heating Business, Insurance Agent, Homemaker/Elementary Teacher, Farmer, Retired Millitary/Realtor, Graduate Student, Division Manager, Carpenter, Civil Defense Director, Retired Mason Contractor (now Bait and Tackle Shop), Government Employee, Fishery Biologist, Farm Owner, Extension Resource Agent, President of Environmental Engineering Contracting Firm.

## COMMENTS OF THOSE WHO RATED THE WORKSHOPS AS EXCELLENT

Very good approach. (Retired - part time Assessor and County Board)

Would help to have a little more time for evaluation even if it meant an evening session or earlier start. (Pharmacist, Bank President)

All concerns voiced. Leadership non-controversial - conducive to freedom of expression. Good mix of participants. (Homemaker)

Please - PSC and DNR and EPA - listen to the concerns of average citizens. The utilities are too powerful and enjoy a luxurious monopoly. And to think we even tolerate advertising for increased energy consumption by the utilities. (Teacher)

You did a great job. I hope such workshops can be held all over the U.S. (College Prof.)

I wish it could have been held on a Saturday, for weekdays with jobs are difficult to coordinate. (Teacher, Politician, Farmer)

It was stated at the workshop, but it seemed everyone was picking out the negative aspects of a power plant. (Retired - Soil & Water Conservation)

Some groups were biased in utilities favor; some groups were biased against power plants. (Housewife, County Supervisor)

More input given by small groups due to ease of relating to given subjects. (Accountant)

O.K., but nearly all ideas expressed were already known to me. (Dairy Farmer)

Proper use of speaker system. (Resort Owner)

Lack of understanding of agriculture problems by people participating. (Housewife)

If this is Professor Delbecq's technique for group workshops, I go along with it 100%. Dave Younkman did a fine job. (Executive Dir., Tourism Promotion Association)

The workshop is fine, but I do hope your work to the PSC will be able to carry some weight and that the PSC will be able to carry some weight with NRC. (General Farming)

Interesting and informative. (Housewife)

Could have used more time to rank concerns once they were itemized. (Financial Manager)

I think this is tremendous. Would like more information about other groups, here and in other areas. Also a check against other methods. (Housewife, Environmentalist)

I enjoyed hearing other people's views at my table - very educational. (Retired Gas Service Man (Natural Gas Company)

It was a good way to exchange ideas. (Grain Farmer)

I believe all measures to bring considerations of these issues that must involve reevaluation of our physical and social environmental concerns, on the basis of futurism and the common goals of humanity, is vitally important. (Museum Dir.)

Would like to have scientists, etc., work on how nuclear energy waste can be neutralized so it would be safe before nuclear plants would be built. (County Board Supervisor)

Very good. If there is any argument about electricity shut off the power in all plants in the nation for one day.

I would like to see more done on solar energy which is free and doesn't harm people. Spend more time and money on this study (solar energy). (Dairy Farmer)

Others: Engineer for Electrical Co-op, Extension Agent, County Park Superintendent, Farmer, Artist, Housewife, Extension Resource Agent, County Coordinator for Elderly, Maintenance, Extension Home Economist, Pulp and Paper Technician, Paper Mill Manager, Municipal Employee, Union Business Representative, Farmer, Unemployed Teacher Retired Person, Forester DNR, Interior Designer and Consultant/active in community affairs.

## COMMENTS OF THOSE WHO DID NOT RATE THE WORKSHOPS

I am against siting of anymore nuclear or low fired coal plants. I am for mass production of solar units for home heating and air conditioning. I would like to see more pilot projects, such as the fuel cell funded by ERDA. If forced to choose between nuclear and coal, I could go with coal if scrubbers, etc., to keep air quality standards high were used. More emphasis on energy efficient conservation. (Housewife)

We are, under the present energy condition, going to need more electrical power and must learn not to pass the burdens on others of assuming responsibilities which are very beneficial to us in our different localities. (Marine Operator)

Emphasis could be placed on hydroelectricity and solar energy. Solar energy not in large scale energy parks, but at the site where used, perhaps with technology and components provided by local power plant. (County Planner)

I don't want a nuclear power plant anywhere. I only want coal as an interim measure for the next fifty years or so until we develop solar, wind power, geothermal power, etc. (Active Citizen)

How much impact will these workshops have on actual power plant siting? (Dairy Farmer)

I did not answer the above because I am not sure of the goal of the workshop. (Homemaker, Comm. Worker)

Appreciated an impersonal atmosphere to prioritize without a need to defend my personal opinions.
(Exec. V.P., Chamber of Commerce)

Too general - not specifying type of plants makes difficult if not impossible to answer questions or ranking. Hard to compare the incomparable. (V.P., Real Estate & Development Company)

These questions are too general - there are only certain specific areas that are suitable (i.e., bedrock close, water supply close), therefore, generalizing is not a good approach. You should list specific sites and then relate questions about them. (Paper Mill Manager)

## TECHNICAL REPORT DATA

*(Please read Instructions on the reverse before completing)*

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15. SUPPLEMENTARY NOTES

16. ABSTRACT

Two hundred and fifteen invited participants attended four public workshops in four Wisconsin cities in the spring of 1977. They were divided into small groups and asked to identify and rank power plant siting concerns in three categories: biological and physical, economic and social, and land use. Each group ranked the top ten concerns in each of the three categories. Participants also completed a survey asking them to rank sites for power plants and transmission lines, to provide some personal background information, and to express their views on the workshop.

A list of every concern mentioned is included in this report, and concerns are combined and analyzed by their ranking, both overall and in the final vote. Economic issues (taxes, consumer costs, community costs, and jobs), agricultural land preservation, and water availability were consistently ranked as the most important concerns. The survey revealed a negative reaction to siting in residential areas, some preference for several small plants rather than one large one, a favorable reaction to power plants designed to serve only local needs, a negative attitude toward Wisconsin's new tax law which provides less power plant tax money for local governments, and a favorable attitude toward the workshops.

17. KEY WORDS AND DOCUMENT ANALYSIS

| a. DESCRIPTORS | b. IDENTIFIERS/OPEN ENDED TERMS | c. COSATI Field/Group |
|---|---|---|
| Power plants (facilities)<br>Public opinion<br>Public relations | Wisconsin power plant studies<br>Siting options and decision alternatives | 43 E,F<br>44 G<br>68 G |

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